IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF
MISSISSIPPI, WESTERN DIVSION

FRED BECK, ET AL.,)
)
Plaintiffs,) No. 3:03C0-P-D
)
vs.)
)
KOPPERS, INC., ET AL.,)
)
Defendants.)
_____)

JAMES DAHLGREN, M.D.
Santa Monica, California
Monday, May 9, 2005
Volume III

Reported by:
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DEPOSITION of JAMES DAHLGREN, M.D., Volume III, taken on behalf of Defendants at 1700 Ocean Avenue, Santa Monica, California, beginning at 9:10 a.m., and ending at 5:00 p.m., Monday, May 9, 2005, before Diana Janniere, Certified Shorthand Reporter No. 10034.

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Santa Monica, California, Monday, May 9, 2005

9:10 A.M. - 5:00 P.M.

JAMES DAHLGREN, M.D.,

having been duly sworn, testified as follows:

FURTHER EXAMINATION

BY MR. HOPP:

Q Good morning, Dr. Dalhgren.

A Good morning.

Q Welcome back. We are here for the third day of your expert deposition in the Beck case.

Now, since the last session of your deposition, have you been told that the court has entered an order narrowing the focus in the case, at least for the first trial?

A Yes, I was told that.

Q Can you hear me all right?

A Um-hmm.

Q And you understand that the first case deals with Sherrie Barnes; is that right?

A Yes, sir.

Q And so what I would like to do primarily over the next two days, and, hopefully, that will be it, but we will see, is to focus on Sherrie Barnes' breast

cancer and issue related to your opinions on the subject of breast cancer and Sherrie Barnes.

The way I want to start is to go over a few things that we touched on during the last session of your deposition that I want to get a little clarification on.

Let me hand you a copy of what we previously marked as deposition Exhibit 15.

A Yes.

Q Deposition Exhibit 15 is an article published in the Journal of Environmental -- I'm sorry. Occupational and Environmental Medicine in 2005.

A Yes.

Q Dr. Schecter, S-C-H-E-C-T-E-R, is the lead author and you are one of several authors; is that right?

A Yes.

Q Can you describe for us, again, the main thrust of this article we see as deposition Exhibit 15?

A It is a report on the levels of PBDEs and dioxins and furans and PCBs in blood samples taken from various individuals who live in the United States.

Q All right. And on Page 21 of the paper, it is the third page of the exhibit under heading of Materials and Methods?

A Okay.
Q We see that whole blood for 29 individuals in Mississippi was collected. Do you see that?
A Yes.
Q Are those 29 people in Mississippi the same people who -- strike that.
Who are the 29 people from Mississippi who are referenced on Page 21 of Exhibit 15?
A Those were individuals from Grenada that we studied.
Q Your 2005 article reports, again, your -- some of the levels of dioxin and furans that you obtained in blood samples that you obtained in Grenada?
A That's correct.
Q And that is recorded in Table 6; is that right?
A Yes.
Q Are they part of the serum or the whole blood groups? Just to clarify, in Table 6, we see a 2003 serum column and a 2003 whole blood pool column.
A I don't remember, from memory, which ones are which. Let me see if I can get some help from -- those were the pooled samples, I believe.
Q And then does the pool sample with the 29 Mississippi -- it's not a very clear question.
A I don't think we did the dioxin levels from the

Mississippi folks, what we used in Mississippi and New York City folks for was for the PBDEs. I don't think the dioxins here represent those 29 folks.

Q I see. So the dioxin levels reported in the 2005 paper come from blood samples taken elsewhere?

A As it says, Method section, Texas research, Dr. Luby, it has been stored at minus 70c. This was put into a bottle for pooled analysis, pooled serum; and 100 pooled blood were collected in 2003 anonymously from discarded blood at the University of Texas Southwestern Medical Center in Dallas Texas and then frozen.

And it is my recollection -- I would have to call Dr. Schecter and double-check this, but we mainly were interested in this paper and PBDEs.

And then the second issue is comparing the '73 values versus the 2003 values for the furans and the dioxins. And we did not include those Mississippi or New York groups in the dioxin analysis in Table 6.

Q All right. Just out of curiosity, the ten from New York, are those firefighters?

A Yes.

Q But, again, and I know you have answered this, just so we are clear on Table 6, the 2003 serum and the 2003 whole pooled blood that comes from the Dallas pooled sample that Dr. --

A -- Schecter --
Q -- Schecter collected?
A -- obtained. I think I testified in the last deposition that each year he collects samples from the same source and gets them analyzed. So he has got a serial set of values he can compare.
MR. HOPP: All right. Thank you.
Let's mark this as Exhibit 36.
(Defendants' Exhibit 36 was marked for identification by the court reporter.)
BY MR. HOPP:
Q Doctor, I am handing you what we have marked as deposition Exhibit No. 36. Is this something that you gave me during the last session of deposition?
A Yes, sir.
Q And I apologize, but I was a little unclear with respect to what use you intended to make of this O'Connor article for the purpose of your testimony in this case. Can you explain that for me?
A Yes. House dust levels for dioxins are not readily -- in other words, we don't have a lot of controls or have a lot of even exposed data on house dust dioxins.
So this serves as a data point to compare the exposures in Grenada near the Koppers facility with what

would be expected in another home in Mississippi where there had not been exposure to a wood treatment plant.

Q Right. Now, Dr. O'Connor went out and collected samples in some other community in Mississippi?

A Yes.

Q Was that in connection with some litigation Dr. O'Connor is working on?

A Yes, it says so here in the disclaimer. This work was funded by Baron & Budd, which is a law firm in Dallas, Texas.

Q Right. I am just wondering what -- wondering, you know, what lawsuit this pertains to?

A No, I don't know off the top of my head. I did not ask Dr. O'Connor that question.

Q And Dr. O'Connor's purpose was to find an area in Mississippi where there had not been a wood treating plant so they can define what might be considered background levels of house dust?

A Yes. In other words, a town with -- you know, relatively small town. I don't recall the population of the town that he used here, but it would be -- the closest data that I am aware of to give us what would be expected background levels for house dust in Mississippi.

Q Now, did you compare the background samples Dr. O'Connor obtained to the levels that were measured in the Carver Circle neighborhood in Grandom, Mississippi?

A Yes.

Q And what, if any, conclusion did you reach comparing Dr. O'Connor's background levels with the levels in Grenada?

A That the background levels in Grenada in the Carver Circle areas and other adjacent areas are much higher than these background levels. Much higher. In some cases, as much as a hundred times higher. Massively high.

Q Now, there are -- strike that.

Did Dr. O'Connor sample dust inside the house or was he looking at attic dust?

A Let me look at this method here collected from carpet dust from home vacuum cleaners, general household dusts using a Shark TM handheld vacuum cleaner.

Q So he would vacuum up a dust sample and examine what came out on the filter of his Sharp handheld vacuum?

A Well, it has a HEPA dust cup filter capable of tracking 99 percent of particles above 0.3 micrometers.

The dust from carpet vacuum cleaner was removed

by cutting the used vacuum cleaner bag with a precleaned box cutter, transferring the sample from a nine ounce glass jar.

So he can -- so he is taking dust from the vacuuming and it looks like carpet dust and general household dust. He is not much more specific about that.

Q Now, with respect to 125 Carver Circle, which is where Sherrie Barnes lived, do you know if, in this case, whether carpet dust or general house carpet samples were collected?

A I think you have to ask Randy Horsak. I believe they did include carpet dust and general household dust, as well as attic dust in their analysis. The details of each collection, you have to ask him about.

Q Okay. Let me show you what we previously marked as deposition Exhibit 14. And for the record, again, can you identify what deposition Exhibit 14 is?

A This is some dioxin and furan blood levels that I obtained from a group of people that I examined as part of a lawsuit in Greenville, Mississippi.

Q These samples were analyzed by the Axys Laboratory, A-X-Y-S, Laboratory in British Columbia; is that right?

A Yes.

MR. HOPP: Let me show you what we will mark as deposition Exhibit 37.

(Defendants' Exhibit 37 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 37 is another set of Axys tables that appears to relate to the same pooled blood samples that we received represented in your deposition Exhibit 14.

A That's right.

Q It has the same Axys ID numbers for the same pooled samples. Do you see that?

A Yes.

Q But it shows analyses for other items, if you will, other chemicals?

A These are chlorinated pesticides, most of which has been banned in the United States, but are still present in the blood of many, many -- most of the population have detectable levels of these chemicals.

Q Now, why did you have the four pooled samples sent to Axys analyzed for these other types of pesticides?

A Because there had been -- this lawsuit involves a pesticide plant and there had been historically

another plant next door to the one that was involved in the lawsuit that manufactured or stored or used this class of compounds, chlordane, aldrin, heptachlor, and DET and Mirex.

So to determine whether or not any of the individuals in this population had been exposed to that class of compounds, we did the blood levels for those chemicals.

Q And I don't have any information regarding background levels for chlordane or aldrin or any of these others.

Did you conclude that the people in Greenville were overexposed to any of the other chemicals or compounds we see represented in the table -- deposition Exhibit 37?

A No, these are not elevated values. They are background level values similar to what most people have in this country.

Q Now, you continue on with deposition Exhibit No. 37, four pages in, we see the count Comp A, Comp B, Comp C, again, the first four pooled samples?

A Yes.

Q With Axys ID numbers which appears to be identical in deposition Exhibit No. 14; is that right?

A You are talking about in this exhibit you just

showed to me, Exhibit 37?

Q Yeah, 37 --

A Inside pages, I guess, it is 3086 is the -- is the Bates?

Q 3088.

A Okay. 3088, let me find that one. Okay. 3088, yes.

Q And there we have another table setting out the same four pooled samples with the same Axys IDs; is that right?

A I think so.

Q And it appears to show dioxin test results; is that correct?

A Yes.

Q Correct me if I am wrong, but it appears to me that the dioxin test results on Page 3088 of deposition Exhibit No. 37 are different from the dioxin test results that we see on deposition Exhibit 14?

A Turn the page, the next one where you see the lipid weight as opposed to the wet weight basis.

MR. PRUDHOMME: 3089, you are referring to.

THE WITNESS: 3089. You usually do this per gram of fat. I, frankly, think it is a waste of time to look at the wet weight basis because it does not tell you anything.

I don't know why they report it, but it is easy enough for them to report, because it does not cost them anything, because what you do is you take that value and then you correct it to the gram of fat. This is the value they actually get off the machine, and then they correct it to gram of fat that is in that particular sample.

BY MR. HOPP:

Q So 3088 is the raw data and the 3089 is the correct data?

A Yes. We try, as a general rule, to use the lipid weight basis when we are talking about distance, that is why we correct for the fat contents because it varies unless the concentration that counts is per gram of fat.

Q Is there some reason why in your 2005 paper in the Journal of Occupational Environmental Medicine, you did not refer to the Greenville of dioxin data as a background value?

A This data came in later. We didn't incorporate it into this paper because we didn't have it at the time we put that paper together.

Q You are preparing -- are you or Dr. Schecter preparing any papers to discuss your most recent dioxin data obtained in Greenville?

A Probably incorporate that in a paper. But if you look at the values, I think they are pretty similar. I mean, it's for TCDD, the 2003 whole blood pool sample was 3.77. Our values are very similar to that.

And you just go down the line. The values are really very similar. So the total TEQs ranging from 11 to 18, they are somewhat lower than the pooled samples from Dallas.

I explained that, I think, based on the fact that people in Dallas are sick and may well be that there is a real difference, but these were collected in 2005. So we are a couple of years further down. So maybe this general trend in the population for a decrease in dioxins is continuing.

Q Well, the total TEQ for your 2003 whole blood pool was 39.1; is that right?

A Yes.

Q And the total TEQ for the Greenville sample, I don't have it in front of me, is --

A 16.6, that is the averages. Pool mean value is 15.35 for all four pool samples.

Q One of the problems is the TCDD did not get added in. If you add those in -- I'm sorry.

A You will have five TEQ points, but some reason, this particular set of four all of the quantitative

values for TCDD were thought to be questionable, but the lab, they were not confident in the signal to noise ratio for that particular anolyte. So the TCDD did not get included in the total TEQ.

On the bottom, if you look at the values and add it, it brings it up a few, as high as the Dallas values.

Q You just discussed the values that we see on Exhibit No. 14?

A Correct.

Q And when you talk about K values for TCDD on the Greenville dioxin total lipid weight samples?

A That's right.

Q Okay. And just so I understand it, is it your testimony that the TCDD values should have been included in the total TEQ for the Grenada pooled samples?

A Well, let's put it this way: It makes the TEQ calculation a definite underestimation.

And, you know, just because of technical problems in the laboratory on this run, you know, if you look at the wet weight basis values, you can see that the levels for TCDD weren't all that low compared to the others; but for whatever reason, the laboratory gave its value, which is -- it was there. It was a peak, but they were not confident in the quantification.

Now, but let's put aside for a moment that concern and look at the values. They look reasonable. The values that they have estimated. So if you added those into the TEQ total, it would -- it would bring it up a little higher. It would not bring it up as high as the Dallas values are, but --

Q I think I understand what you told me, but I want to make sure I have a clear value.

Dr. Dalhgren, is it your testimony that the values for TCDD on deposition Exhibit 14, leaving the K aside, the notion that the K values aside, are reasonably within the ballpark for what we would expect for background TCDD values?

A Yes.

Q And so had they been added and the average is something in the neighborhood of four, that would have brought the total TEQ for the Greenville cohort up to about 20?

A Right, exactly.

Q It is still lower --

A Than the Dallas.

Q -- than the Dallas control group that we see -- I'm sorry, the Dallas pooled samples that we see identified in the 2005 Schecter article?

A Right. And I mean, that's actually, when you

think about it, Greenville is a small town. I think it has 10- or 12,000 people.

Most of the people live in larger lots and more -- a lot of people, it is semi-rural where they live. There is very little traffic. No freeways.

There is very little in the way of industry, as opposed to Dallas, where you have a lot of traffic, a lot of industry, a lot of different factors going on; and this is the so-called urban/rural difference.

So their value of 39 and this value of 20 to at least -- some extent at least, there is also a time difference; but there is also a difference in urban/rural.

Greenville is pretty really urban/rural. Small town. It is kind of in between rural world and big city. So there is all of these factors at work.

That is one of the reasons why when you are looking at values, you like to have as close as possible to similar exposure parameters for comparisons.

Q So the totaled TEQ of 39 you got in the Dallas pooled samples for 2003, do you believe that to be a reasonable representation of a total TEQ for an urban population at that time?

A Yes, I think it is reasonable. You know, the data speaks for itself. I mean, it is what was found.

Q Does the Dallas pooled sample of 2003 strike you on a total TEQ basis as abnormally high or abnormally low?

A No, it struck me as being a little higher than what I expect, but I think I shared with you some of the reasons why I think that is true.

The 39, I think, is a little on the high side for, A, they were sick people. B, we don't know the ages. They might have been as a group -- you know, if you go to a hospital-based population, there tends to be an older age because older people get sick more and get hospitalized more.

And, three, it is an urban environment as opposed to non-urban. So there are several reasons why you would expect it to be somewhat higher.

We know that as people age, their TEQs go up because the dioxins and the furans, PCBs accumulate. Older people have significantly higher levels than younger people.

Q I am showing you what we have marked as deposition Exhibit 38. These are recent samples that you obtained on a population.

My question is does this relate to Greenville or can you tell me what population this laboratory report relates to?

(Defendants' Exhibit 38 was marked for identification by the court reporter.)

THE WITNESS: Well, it is arsenic values.

BY MR. HOPP:

Q Right. It was around 2004, the samples. It was around the time that you were doing your work in Grenada.

So I am wondering if anything this set of values relates to?

A Well, it relates to a possible arsenic exposure. Most of the values are nondetect.

I am trying to see if I can recognize any of these names, but I am not certain. I have to go back and check.

None of these names look to me like they are relevant to the issues of Grenada. I think -- I think I see one name that looks -- yeah, this is also from the Greenville population. These names of Greenville people.

Q Was --

A There was a question of arsenic exposure, as well, because that is why we did arsenic.

Q In Greenville, you were not only looking for dioxin, you were also looking for other chlorinated compounds, other pesticides, and arsenic?

A Yes.
Q And it appears in Greenville you were not able to find significantly exposed levels, any of those constituents; right?
A No. And, frankly, I was not expecting to find them to be elevated.
I think I testified in another deposition it was one other expert that wanted to do these studies. And that is why I argued for pool samples to try to save some money because I didn't think they would be positive. They were more -- you could call them sort of like rule outs, you know. Useful.
Q Looking to see what wasn't there?
A Yes, that's right.
Q And you did pooled samples for the dioxin and for the other pesticides; but for arsenic, you did individual samples?
A Yes. That is partially because the individual samples are not expensive. In other words, I believe it is $20 per person, which is a lot different than $1600. So it wasn't so mandatory that we pooled those samples.
Q Is a pooled -- for arsenic, you do urine samples?
A Well, you can, but urine is a better -- actually, you get down to it, it is probably better to

do hair and fingernails because it indicates exposure over time.

In urine, arsenic is going to be relevant over a certain period of time.

Q Can you do pooled urine samples?

A Yes, it can be done. Take an aliquot from each sample.

Q Does arsenic exposure form any part of your opinions in the Grenada case?

A I was looking at the arsenic issue with Dr. Sharma's arsenic values. It appears to be, at least based on his modeling, relatively low exposure to arsenic and in the air.

I have asked for arsenic to be done on any -- if we get any dust or soil samples, just to double-check that point, but because the air modeling is so incredibly conservative, you know, based upon what Dr. Sharma has calculated, there is a little bit of disconnect, at least in my qualitative looking at the data. I would expected some of the values that he estimated from modeling to be higher.

And that is based on the fact, for example, in naphthalene, which you can smell around the plant frequently, the modeling levels would be so low, you probably wouldn't smell it. So there is a disconnect

there.

And I think that may be true for arsenic, as well. So what I am suggesting is that arsenic values be looked at.

And the reason for that, they may have been burning wood that had been treated with arsenic. So there may be some particulate that contains arsenic and stripped and added to the risk.

Q Do you know whether they -- one way or the other, whether they were burning wood laced with arsenic?

A No. This is a question that has been raised. If it were to be found to be elevated in the sampling in the homes in the Carver Circle area in particular, it might be worth pursuing further that question.

Q Just to go back to your naphthalene point, you stated that you can smell naphthalene in the Carver Circle neighborhood, at least at times?

A Yes, at times.

Q And naphthalene is a volatile organic compound?

A Yes. And it has been found to be one of the higher constituents in the degrees of vapors and it is sought that you get a creosotic smell.

Q Naphthalene, as an individual constituent, has a very low over threshold?

A I don't know what it's over threshold is. When you say "very low," I don't know what that means.

Q Right.

A I did look it up and I can't remember what it was, but my impression, as I say, a quantitative impression was I would have expected some of the values.

Some people would complain of headache and feeling sick to their stomach and irritated eyes from the exposures. Those would be -- seems to me higher, if they are high enough to cause those symptoms, it would be higher than what Dr. Sharma's value represents.

Q Arsenic is a metal; right?

A Yes.

Q And so the transport mechanism for a metal is going to be different for volatile organic compounds in the area?

A Yes, that is correct.

Q It does not travel, as far as easily?

A Most arsenic would be attached to particulate arsine gas, which can also be formed, is usually rapidly -- oxidized, made -- made into something else that is attached to particles, so it is mainly a particulate risk.

Q Have any of the health issues that you obtained identified in the Carver Circle been coincident with

arsenic exposure, in your view?

A Well, let's put it this way: I would not immediately thought of arsenic as a cause for the symptom complex that we have seen.

But you do understand, at least it is my impression, that there are health problems that could have been aggravated by arsenic exposure.

The human body can only respond in a certain number of limited ways to a variety of different chemicals. There is a lot of overlap. One cannot look at a health profile and predict what chemical has caused that.

Q Are you doing any further work on arsenic in the Carver Circle neighborhood right now?

A Well, as I said, I have requested that if any sampling is done, that arsenic be measured because it is not expensive to do, and it may yield some additional information.

Q Now, we spoke earlier on in the deposition about the notion, we narrowed our focus for the first trial to Sherrie Barnes.

A Yes.

Q Your report was drafted at a time when we were looking at 12 (phonetic) different test plaintiffs with a variety of health effects?

A That's correct.

Q And so would it be accurate to say that certain portions of your report is current -- as currently drafted does not relate to Sherrie Barnes specifically?

A Well, her -- I think her daughter filled out the form and answered the questions for her mother as if she would have been describing her various complaints.

And I thought it was important, even though she was deceased, to include that information. That like many other people from the neighborhood, she had a variety of complaints and health problems in addition to her cancer that killed her.

But -- and she had what I -- I would call wood treatment waste induced symptom complex similar to her neighbors. And so I did include her daughter's report about the various health problems that she had.

Q All right. Now, we talked earlier in the last session of the deposition about the daughter's reported different symptoms that Sherrie Barnes had, and correct me if I am wrong, but I believe you expressed some reservation about whether the symptoms that the daughter reported related to chemotherapy and Sherrie Barnes via final illness or whether these were symptoms that she had at some other point in her life.

Do you remember that discussion?

A Sure. It is certainly true that when she had the cancer and had the chemo, these things can cause symptoms. No question. And I don't know in detail how to differentiate those two.

Q Do you -- can you tell me, then, what symptoms Sherrie Barnes had that are consistent with wood treating waste induced symptom complex other than her breast cancer?

A Well, at this point, what I would emphasize is that almost everybody we examined in Columbus, Mississippi and in this setting, and even in some other cases that we are working on, involve creosote.

There is sort of a pattern of illness. And if -- if -- well, I can't distinguish, as I have stated, which of those symptoms were related; but it was worth noting that she did have a pattern similar to her means.

Having said that, you know, I don't think that is an important issue in her case whether or not she had any of these symptoms before she developed her cancer and had her chemotherapy because of the overriding issue here, which is her cancer.

So I didn't -- I should have -- if it was important and critical for us, I would have inquired further about it to distinguish the two.

And in terms of putting together my original

report, I included it mainly because of what I said. It wasn't consistent with other people.

Q But the real issue for Sherrie Barnes is the breast cancer?

A That's right.

Q And we are not going to talk about Sherrie Barnes' neurological symptoms or other things?

A That's right.

Q Because we cannot separate those symptoms from pre-chemotherapy and post-chemotherapy?

A And as I said, it does not matter anyway. I would have spent the time and effort to do and attempt that because, let's face it, it is probably knowable. I just didn't find out.

Q All right. Now, for the purpose of giving your opinions on Sherrie Barnes, do you still intend to rely on the comparison between the blood samples for PAH and dioxin that you obtained for the 25 or 29 other people in Grenada and -- strike that. Strike that question. Let me ask it again.

For the purpose of your opinions in this case, you obtained 29 samples -- blood samples for dioxin analysis from Grenada people; is that right?

A Yes.

Q And you also got 25 samples for PAH analysis;

is that right?

A That's right.

Q And then you compared the results of those Grenada samples, the analysis of those Grenada with analyses for other samples and have the opinion that the people in Grenada, at least the 29 people that you evaluated, was overexposed to dioxin PAH; is that right?

A Yes, I did. Those values reflected the group, as a whole, had overexposure.

Q And you would tend to rely on that work; that is, the comparison blood sample work for the purpose of your opinions with respect to Sherrie Barnes?

A Yes, I mean, we have a lot of other evidence that is important here but as part of the total evidence would be those blood levels, yes.

MR. HOPP: Let's mark as deposition Exhibit No. 39.

(Defendants' Exhibit 39 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Dr. Dalhgren, I hand you what we have marked as deposition Exhibit No. 39. Do you see that?

A Yes.

Q And deposition Exhibit No. 39 is something that I printed off of disks which plaintiff's counsel

produced in this case as part of responding to defense counsel's request for background materials in your possession?

A Yes.

Q Do you recognize the printout as we see in Exhibit 39?

A No, I don't recall this. This is an Excel spreadsheet.

Q Does deposition Exhibit No. 39, at least the first page of it, accurately reflect the names and dates of birth of the 29 background samples -- strike that.

Does deposition Exhibit No. 39, at least on the first page, accurately reflect the names and dates of birth of the 29 people from whom you obtained background samples for the purpose of dioxin analysis in Grenada?

A Well, I would have to go check the records to make sure that the dates of births is correct. I can just say, in general, these look like the names that I recall were part of the Grenada patients we examined.

But I certainly cannot tell -- cannot testify about the dates of births without referring to each of their records.

Q Let's do that. Dr. Dalhgren, we are looking at deposition Exhibit No. 39. Let me ask you first. We touched on this a little bit.

What sort of things impact the level of dioxin in a person's blood? You mentioned age. What else?

A Well, probably exposures, you know, that Dr. Sawyer talked about different exposures. The main source for background levels is in the diet. We get the dioxins and furans from food.

Q Do smokers have a higher level of dioxins and furans in their blood?

You stated in your report in this case that you did not control for barbecue exposure or barbecue consumption; is that right?

A I don't recall that we asked about barbecue, no.

Q Okay. That is actually PAHs?

A That is PAHs, yes.

Q But generally, though, diet will affect the level of PAHs in the blood?

A Well, exactly. PAHs is print in background diet in the United States. And studies on looking at people who eat a lot of barbecue have been relatively unsuccessful in distinguishing, so even though theoretically it is a root of exposure, I don't think there is much documentation that that contributes to PAH added up levels. Smoking does, but barbecue ingestion doesn't.

Q What types of food increases the level of dioxin in a person's blood?
A Fish.
Q Anything else?
A Well, fat. Probably, if there is some slight increase in people who eat a lot of fatty meats, but the difference is very slight.
Seafood is really the biggest contributor to the dioxins and more importantly to the PCBs.
Q Dr. Schecter has looked at dioxins in meats and eggs?
A Yes.
Q And in dairy products; is that correct?
A He and many other people, that's correct.
Q And has he found that meat, eggs, and dairy products are major contributors to dioxin exposure?
A Yes, as opposed to grains and vegetables. That's correct.
Q I just want to go down the list, then, and go through the 29 people for whom you obtained blood samples for the purpose of dioxin exposure.
First, alphabetically, I believe is Clyde Bailey. Let me hand you what we have marked as deposition Exhibit No. 40. Is deposition Exhibit 40 your report on Clyde Bailey?

(Defendants' Exhibit 40 was marked for identification by the court reporter.)

THE WITNESS: Plus his chart, yes. It has got my report plus his chart.

BY MR. HOPP:

Q What do you mean by "chart"?

A Well, you photocopied the questionnaire, I believe, as well as the notes, plus physical exam; plus the lab studies that were done that were in his file.

Q When you say "chart," you're not talking about his medical records, you are talking about --

A My chart on him.

Q The chart that you created?

A That's right.

Q And Clyde Bailey is actually a woman; is that right?

A Yes.

Q She is 73 years old or was at the time that --

A I examined her in December 2003. That's right.

Q A nonsmoker; correct?

A Okay. Let's see about her smoking. Yes, she is a nonsmoker.

Q Again, just so we are clear -- sorry we are going over this. The 29 people that you have examined from Greenville for the purpose of obtaining their

dioxin levels, you also picked 25 of those same people for the purpose of obtaining PAH levels; is that right?

A Yes.

Q And there were four people that didn't show up for the blood draw for PAH; right?

A I don't recall why we did not -- we couldn't do those four for the PAH. I'm not sure. They didn't get enough blood or some other problem -- I'm forgetting it. I believe we tried to do the PAHs and the dioxins on the whole 29.

Q Tell me about that. Were the blood drawings for PAH and dioxin done on the same day?

A Yes.

Q By the same --

A Same tech, yes.

Q And they were sent to different places for analysis?

A That's correct.

Q The dioxin samples were sent to ERGO Laboratories in -- I'm sorry. Blood samples for dioxin were sent to ERGO Laboratory in Germany; is that right?

A Yes.

Q Blood samples for PAH samples were sent to Dr. Phillips?

A Yes.

Q And he is in England?
A Yes.
Q Why did you choose Dr. Phillips for the DNA adduct PAH analysis?
A Because Dr. Perera at Columbia told me that he had experience with creosote exposed animal studies and had experience for looking at creosote specifically. B, he was very interested in the project and was willing to help us out by doing these samples. So it seemed like a good idea to me.
Q Perera identified Phillips for you?
A Yes.
Q Did you ever work with Phillips before?
A Yes.
Q Have you ever met Phillips?
A Yes.
Q When?
A Last year, when I went to Europe to give a paper in Prague, Chekov, in the Chek Republic, by, I believe it was in April of 2004, after that meeting, I went to London and visited with Dr. Phillips about these cases.
Q So did you meet with Dr. Phillips and talked to him before he did the analysis in this case?
A I spoke to him on the telephone and we

corresponded by E-mail; but I hadn't met him face-to-face, no.

Q And then have you used Dr. Phillips' lab for analysis for cases other than the Grenada case?

A No.

Q Now, you did send him some samples from Jerome, Florida; correct?

A Yes.

Q You were or are involved in litigation involving PAH exposures in Jerome, Florida; is that right?

A Yes.

Q How many samples from Jerome did you send -- did you have sent to him?

A I believe it was nine. Nine or twelve, I forget the exact number.

Q There were at least 50 plaintiffs in the Jerome litigation; is that right?

A Yes, we did some controls and we didn't -- we weren't in the position to draw all of the people. We only drew a few.

Q So you drew single digits. Somewhere under 10 for the Jerome exposed population?

A Well, we also drew some controls.

Q In Homosassa, Florida?

A In Homosassa, Florida.
Q Let's talk about Jerome. There were 50 people, you sent fewer than 10 samples?
A As I said, we only had access to a few people.
Q Then Homosassa, you collected blood samples for these people for controls in the Jerome litigation; is that right?
A Yes.
Q And you sent those to Dr. Phillips for analysis?
A Yes.
Q Other than the Grenada blood samples, the Jerome blood samples, and the Homosassa blood samples, did you ever send blood samples to Phillips for analysis of PAHs?
A No.
Q Do you know if any other entity sent human blood samples to Dr. Phillips to do PAH and --
A I didn't ask him that question. He probably has on PAH adducts from different groups of people. And I did not ask him who sent him the samples, but there are probably collaborators in papers. He has done -- for example, he has done PAH adducts on the Harvard doctor study that was done.
Q I heard of the Harvard nurses' study. Is there

also a Harvard doctors' study?
A Yes.
Q And he looked at PAH and DNA adducts for that?
A Yes.
Q Are those results published?
A Yes.
Q Let's look at deposition Exhibit No. 41.
(Defendants' Exhibit 41 was marked for identification by the court reporter.)
BY MR. HOPP:
Q Before you start that, again, focusing on things that would impact someone's level of blood dioxin, is race a factor? Do black people tend to have more dioxin in their blood than white people?
A I don't think so. I haven't actually thought about that issue. Certainly, never came up before, but as far as I recall, there has not been a difference found; but I am trying to remember a reference on that point. I have not seen a lot of emphasis on that point.
Q How about for PAHs? Is race a factor for PAHs in blood? Do black people tend to have more or less PAH/DNA adducts in their white blood cells than white people?
A I don't recall any data on that point. Same as with dioxins. There may be some data, I am just not

aware.

Q Looking at deposition Exhibit No. 41, this is your report and chart for Randy Barnes; is that right?

A Yes.

Q And if you look at deposition Exhibit No. 39, Randy Barnes is another one of the 29 people from whom you collected blood for the purpose of dioxin and PAH samplings; is that correct?

A Yes.

Q And Mr. Barnes, at least at the time this report was created, was a 42-year-old African-American man; is that right?

A Yes.

Q And on the first page, it indicates that the Mr. Barnes was a nonsmoker. Do you see that?

A Yes.

Q I hand you what we have marked as deposition Exhibit No. 42. Deposition Exhibit 42 is your report and chart for Sheila Barnes.

(Defendants' Exhibit 42 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Do you see that?

A Yes.

Q And Sheila Barnes, if you look at deposition

Exhibit No. 39, is another one of the 29 people from Grenada from whom you collected blood for the purpose of dioxin and PAH testing; is that right?

A Yes.

Q And at the time that this report was created, Ms. Barnes was a 38-year-old black woman; is that right?

A Yes.

Q Ms. Barnes did work at Heat Craft at some point?

A Yes.

Q And at Heat Craft, they had used, in the past, at least TCE, which is trichlorethylene; is that correct?

A That's correct.

Q And trichlorethylene exposure causes breast cancer?

A Well, I think it increases the risk of breast cancer, yes. I am trying to remember about the epidemiological data. There is some data on TCE, but usually it is a combo of PCE and TCE that has been linked to breast cancer.

Q And you remember that you testified in the Redlands case that the TCE does not increase the risk of breast cancer; do you remember that?

A Yes.

Q I believe you testified in the Redlands case that TCE causes breast cancer; do you remember that?

A Well, I think it is a distinction. I would say it increases the risk and would be a contributing factor if someone had the disease, yes.

Q Deposition Exhibit 43.

(Defendants' Exhibit 43 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Is deposition Exhibit 43 your report and chart for Franklin Beck?

A Yes.

Q And in Mr. Beck, if you look at deposition Exhibit No. 39, is another one of the 29 people from Grenada from whom you collected blood for the purpose of PAH and dioxin analysis; is that right?

A Yes.

Q And Mr. Beck, at least at the time that the report was created, was a 78-year-old black gentleman?

A Yes, he was.

Q He was also a nonsmoker; is that correct?

A Yes.

Q Mr. Beck has had a history of cancer; is that right? Prostate cancer?

A Prostate cancer, yes.

Q Let's look at deposition Exhibit No. 44. Is deposition Exhibit No. 44 your report for Patricia Beck and your chart for Patricia Beck?

(Defendants' Exhibit 44 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And Patricia Beck, if we look at deposition Exhibit No. 39, is one of the 29 people from whom you collected blood for the purpose of dioxin and PAH analysis; is that correct?

A Yes.

Q And at the time of the report, at least Ms. Beck was a 44-year-old African-American woman; is that right?

A Yes.

Q And she was also a nonsmoker, if you look at Page 2 of Exhibit No. 44?

A Yes. Um-hmm.

Q She has been diagnosed with Lupus now; is that right?

A Yes.

Q And she has had -- she has been unable to become pregnant within the last 27 years; correct?

A Yes.

Q And a medical history of hypertension, diabetes, rheumatoid arthritis, and other items we see mentioned on the fifth paragraph --

A Yes.

Q -- of deposition Exhibit No. 44?

A That's correct.

MR. HOPP: Can we go off the record?

(Brief recess.)

(Defendants' Exhibit 45 was marked for identification by the court reporter.)

MR. HOPP: Let's go back on.

Q Dr. Dalhgren, I handed you what we have marked as deposition Exhibit No. 45. Deposition Exhibit No. 45 is a report, but not a chart for Arthur Blake. Do you see that?

A Yes.

Q And Arthur Blake, at the time the report was created, was a 39-year old male; is that right?

A That's right.

Q Do you know what his race was?

A Not offhand.

Q And if you look at deposition Exhibit No. 39, Arthur Blake is one of the people from Grenada from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?

A Yes.
Q And Mr. Blake was also a nonsmoker; correct?
A Correct.
Q He has had exposure to the Koppers plant because he worked there as a construction worker at some point. Do you see that?
A Um-hmm. Correct.
Q Let's look at deposition Exhibit 46.
(Defendants' Exhibit 46 was marked for identification by the court reporter.)
BY MR. HOPP:
Q Deposition Exhibit 46, your report and chart for Jennifer Bradford; is that right?
A Um-hmm.
Q I'm sorry. Is that a "yes"?
A Yes.
Q And looking, again, at deposition Exhibit No. 39 is another one of the people from Grenada for whom you collected blood samples for PAH and dioxin analysis; correct?
A Yes.
Q She is a 22-year-old female. Do you see that?
A Yes, sir.
Q And she is -- is her race mentioned on your report?

A Well, if we need to look that up, we do usually record that on the pulmonary function study.

She is black.

Q Okay. And a nonsmoker; correct?

A Right -- wait a minute.

Q Page 2.

A It said on that form she smoked. She denied it on the questionnaire.

Q But her pulmonary function --

A PF, it said that she smoked.

Q Well, that actually brings us to an interesting point. The report, using Exhibit No. 46 as an example, this is urinary; is that right?

A Yes. In the questionnaire, she filled it out for us.

Q The exhibits we have looked at, 40 through 46 so far --

A Um-hmm.

Q -- for the 29 people in Grenada, did you actually meet with these people and administer the questionnaire?

A Yes, we did. And we -- it varies a little bit from study to study, but the general rule is that we send them the questionnaire. And this is the most common thing. Have them fill it out and then they come

in and we go over it with them making sure that they filled it out adequately and completely. And if there are any apparent contradiction, we deal with those.

Q Now, medical tests are often conducted by techs of one type or another?

A Yes.

Q Including the pulmonary function test. You don't do the pulmonary function test, do you?

A No, the technician does.

Q And is there additional information that the patient would supply for the purpose of those tests? I mean, in this case --

A I mean, in this case, she did -- apparently, was asked again whether she smoked and she said yes to the -- to the tech who did the pulmonary function.

Q Is there any other indication in Exhibit 46 of whether Jennifer Bradford smoked or how much?

A No, but you know we can look at some of the other data that we have on her, if we need to identify whether she was -- she may have smoked at some point and just -- this happens sometimes.

You ask a patient a question at one point and then they say no; and then later you ask them the same question and then their memory is jogged, oh, yeah, when I was 16, I did smoke a few cigarettes or whatever.

We would call her essentially a nonsmoker, but this sort of a contradiction occasionally occurs.

Q Let's look at deposition Exhibit No. 47.

(Defendants' Exhibit 47 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 47 is your report and chart for Dorothy Brown; is that right?

A That's right.

Q If you look at deposition Exhibit No. 39, Dorothy Brown is another one of the people from Grenada from whom you collected blood samples for the purpose of dioxin and PAH analysis; is that right?

A That's right.

Q And Ms. Branch -- Ms. Brown, at the time the report was conducted, was a 31-year-old African-American woman; is that right?

A Well, I don't have on the report her race, but I will take your word for it.

Q It says, "thirty-one year old black lady"?

A Oh, yeah. You are right.

Q And at least according to that narrative report, she never smoked; is that correct?

A And also on the PF, the report says she didn't smoke.

Q She did have or does have hypertension; is that right?

A Yes.

Q And she lived about a block away from the Koppers plant for a total of five years; is that right?

A Well, up to age 18, she lived in Pine Hill. And then on age 18, she moved to the Tie Plant area about a block from Koppers and lived there five years.

Q And then she said she was away from -- for five years and went back and spent a total of five years in the area. I am wondering whether it is five years total or ten years?

A That's a good question. Let's go back to the residential history and get some more insight on that. I should have some pages which she fills out her residence history. Let me see if I can find it.

Well, I think my impression is that it was a total of five years. I don't have any way to resolve this issue without probably going back to some additional records.

Q All right. Let's move on, then.

Let's look at deposition Exhibit No. 48.

(Defendants' Exhibit 48 was marked for identification by the court reporter.)

THE WITNESS: It's a total of fives years on

Window Road.
BY MR. HOPP:
Q Okay. This is 47.
A I know, I am just looking back.
Q Just to make sure, your prior answer was on Dorothy Brown?
A That's right.
Q And that is a total of five years in the Carver Circle neighborhood?
A Yes.
Q Deposition Exhibit No. 48, your report and chart on Jacqueline Brown; is that right?
A Yes.
Q And Jacqueline Brown, if you look at deposition Exhibit No. 39, is another one of the people from whom you collected blood samples for the purpose of PAH and dioxin analysis?
A Yes.
Q And at the time this report was created, she was a 33-year-old woman; is that right?
A Yes.
Q Also, a nonsmoker?
A Yes.
MR. PRUDHOMME: Well, just for the record, my report says 30.

MR. HOPP: Did I say, "31"?
MR. PRUDHOMME: 33.
THE WITNESS: She is 30-years old. Born '73. 2003. She was still only 30.
MR. HOPP: My mistake.
Q Ms. Brown is 30-years old in 2003?
A Um-hmm.
Q And her blood was collected for the purpose of dioxin and the PAH analysis in 2004; is that right?
A Yes. Um-hmm.
Q And it is the same with all of these other folks, it would have been a year older -- strike that.
We have the dates of birth and we can just subtract. Mrs. Brown is a nonsmoker; is that right, or Ms. Brown -- Jacqueline Brown?
A Yes, she is a nonsmoker.
Q She has had an abnormal Pap smear; is that right? This is right above the social history.
A Yes.
Q Looking at another Mrs. Brown. This is Loretha Brown, Exhibit No. 49. Loretha Brown, first name, L-O-R-E-T-H-A.
(Defendants' Exhibit 49 was marked for identification by the court reporter.)
THE WITNESS: Loretha.

BY MR. HOPP:

Q Loretha Brown. Is deposition Exhibit No. 49, your report and chart for Loretha Brown?

A Yes.

Q And at the time that the report was created, Ms. Brown was a 34-year old woman; is that correct?

A Yes.

Q Also, if you look at Page 3, a nonsmoker; correct?

A Correct.

Q And Loretha Brown was one of the people from Grenada from whom you collected blood for the purposes of PAH and dioxin samplings; is that correct?

A Yes.

Q And her name appears on Deposition Exhibit No. 39; right?

A That's right.

Q Let's look at deposition Exhibit 50.

(Defendants' Exhibit 50 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit 50 is your report and chart for C.W. Carver; is that right?

A Yes.

Q And C.W. Carver is one of the people from

Grenada from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?

A Um-hmm.

Q Is that a "yes"?

A That's a yes.

Q And the time the report was created, Mr. Carver was a 72-year-old African-American male; is that right?

A Yes.

Q And Mr. Carver had a cancerous lump removed from his head and neck; is that right?

A Yes.

Q And Mr. Carver has been a smoker; is that right?

A Correct.

Q He smoked from the ages -- he began when he was 21 and quit smoking when he was 62; is that right?

A Yes.

Q It looked like he was a half a pack a day smoker?

A That's what he said, yes.

Q Let's look at deposition Exhibit No. 51.

(Defendants' Exhibit 51 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 51 is your report and

chart for Glenda Collins; is that right?
A Yes.
Q And Glenda Collins, if you look at deposition Exhibit No. 39, is another one of the people from Grenada from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?
A Yup.
Q And the time the report was created, Ms. Collins was a 49-year-old woman; is that right?
A That's right.
Q And she appears to be a current smoker, at least at the time of this report?
A Yes.
Q Most cigarettes smoked in a day is 30, so she is a half a pack a day smoker?
A Yes, at one time, she was, but she was not smoking that much -- it may not have been at the time, but pretty heavy smoker.
Q She is a breast cancer survivor?
A Yes. In 1992, it was diagnosed.
Q Let's look at deposition Exhibit No. 52.
(Defendants' Exhibit 52 was marked for identification by the court reporter.)
BY MR. HOPP:
Q Deposition Exhibit No. 52 is your chart -- I

don't have a report. I could not find a report in the materials that I had for a Sam Conley.

Do you see your chart for Mr. Conley, deposition Exhibit No. 52?

A I see the chart copy. I don't see a report.

Q Right. There is no report. Can you tell me Mr. -- strike that.

Mr. Conley -- Sam Conley is one of the people from Grenada from whom you took blood samples for the purposes of PAH and dioxin analysis; is that right?

A Yes.

Q And what was Mr. Conley's age, at least -- that is, his date of birth?

A 1913. He was 90 at the time when we saw him.

Q And do you know whether he was ever a smoker?

A No, he did not smoke.

Q Has he ever had cancer?

A Yes.

Q What type of cancer did he have?

A Prostate cancer in 1999, he was diagnosed.

Q Deposition Exhibit 53 is your report and chart for Latasha Hardiman. Do you see that?

(Defendants' Exhibit 53 was marked for identification by the court reporter.)

THE WITNESS: Um-hmm.

BY MR. HOPP:

Q I'm sorry. Is that "yes"?

A Yes.

Q And Latasha Hardiman is one of the people from Grenada in which you collected samples of blood for PAH and dioxin analysis; correct?

A Yes.

Q And at the time of the report, Ms. Hardiman was a 21-year-old woman; is that right?

A Yes.

Q It stated that she was actually born with cancer of the uterus; is that right?

A Um-hmm.

Q Is that a "yes"?

A Yes.

MR. PRUDHOMME: Was that Exhibit 53? I'm sorry.

MR. HOPP: Yes, 53.

Q At birth, they also removed her ovaries; is that correct?

A Yes.

Q And that was due to the cancer of her uterus?

A Yes.

Q Have you ever seen another patient like this, a person who had uterine cancer as a baby or as a newborn?

A I would say that is exceedingly rare.
Q Have you ever seen another case of this type?
A I haven't personally, no.
Q Deposition Exhibit 54 is your report and chart for Carmelita Hill; is that right?
(Defendants' Exhibit 54 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And Carmelita Hill is another one of the people from Grenada from whom you collected blood for the purpose of PAH and dioxin analysis; is that right?
A Yes.
Q And Ms. Hill, at the time of the report, was a 22-year-old woman; is that correct?
A Yes.
Q And she has had Lupus since the age of 14; is that right?
A Yes.
Q You also appear to note neurological problems with Ms. Hill: Problem concentrating, throbbing headaches, difficulty falling asleep and itching?
A Yes.
Q She is a nonsmoker; is that correct?
A Yes.

Q Deposition Exhibit 55 is your chart and report for Jimmie Loggins; is that correct?

(Defendants' Exhibit 55 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And Mr. Loggins is another one of the people from Grenada from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?

A Yes.

Q At the time the report was created, Mr. Loggins was a 7 -- I'm sorry. Jimmie Loggins was a 73-year-old woman?

A Yes, that's right.

Q And Ms. Loggins is on medication for high cholesterol and high blood pressure, towards the bottom of the first page; is that correct?

A Yes.

Q And she is a nonsmoker; correct?

A Yes.

MR. HOPP: It's almost 11. Can we take a five-minute comfort break?

(Brief recess.)

BY MR. HOPP:

Q Dr. Dalhgren, I am handing you what we have

marked as Exhibit 56. 56 is your report and chart for Gloria Loggins. Do you see that?

(Defendants' Exhibit 56 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q Ms. Loggins is one of the people from Grenada from whom you took blood samples for the purposes of PAH and dioxin analysis?

A Yup.

Q And Ms. Loggins, at the time that you created this report, was 38-years-old?

A Right.

Q And she is a smoker; is that right?

A Yes.

Q Appears to be a current smoker?

A Yes.

Q With the most cigarettes she consumed in a day is seven; is that right?

A Yes.

Q So would you characterize her as a light smoker or an occasional smoker?

A A light smoker.

Q Deposition Exhibit No. 57 is your report and chart for Larry Loggins; is that correct?

(Defendants' Exhibit 57 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And Mr. Loggins is one of the people from Grenada from whom you took blood samples for the purposes of PAH and dioxin samples?

A Yes.

Q And at the time of the report, Mr. Loggins was 48-years-old; is that right?

A Yes.

Q And Mr. Loggins is also a smoker; correct?

A Yes.

Q Mr. Loggins began smoking when he was 20 and it appears that he continues to smoke; right?

A He does, yes.

Q And the most cigarettes per day is 10. And at least at one point, he was a half a pack a day smoker; correct?

A Right.

Q Deposition Exhibit No. 58 -- I'm sorry, is your report and chart for Larry Minga; is that correct?

(Defendants' Exhibit 58 was marked for identification by the court reporter.)

THE WITNESS: Correct.

BY MR. HOPP:

Q Mr. Minga is spelled M-I-N-G-A. And Mr. Minga, at the time of the report, was a 55-year-old white male; is that correct?

A Yes.

Q And Mr. Minga is one of the people from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?

A Right.

Q Mr. Minga is a nonsmoker; correct?

A Correct.

Q Now, it says that Mr. Minga has had many small lipomas removed?

A Lipomas.

Q What are lipomas?

A They are benign fatty tumors occurring in the subcutaneous tissue.

Q What, if anything, causes lipomas?

A Well, I don't think there is any real recognized studies on that question, which is kind of interesting in itself, but there is no known cause.

Q Mr. Minga, from his occupational history, appears to work for a power company -- utility company?

A And he climbs creosote poles. He happens to have the highest TEQ value -- actually, the highest TEQ

value, interesting enough.

Q Now, this is a man that climbs poles, and of the 29 people of whom you collected blood samples, Mr. Minga has the second highest?

A There are two others. 93. And he is 89 for practical purposes. Their values are pretty comparable.

Q Do you think that is due, in part, to him climbing poles?

A Yes, it probably is. It is very interesting.

Q Let's look at Sandra Minga, his wife, which is Exhibit --deposition Exhibit No. 59.

(Defendants' Exhibit 59 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 59 is your report and chart for Sandra Minga; is that correct?

A Yes.

Q And Ms. Minga is one of the people from Grenada from whom you collected blood samples for the purposes of PAH and dioxin analysis; is that right?

A Yes.

Q And at the time of your report, Ms. Minga was a 54-year-old woman; is that right?

A That's right.

Q And she has a high total TEQ for dioxin?

A Let's see what her TEQ was. It was 35.
Q But her husband is what?
A 89. Hers is higher than the average, but not nearly as high as the husband.
Q So whatever he is doing that is causing his high TEQs is likely coming from outside the home; is that right?
A Well, I think we already discussed that, yes. But there is also a tendency for men to be higher than women. Even when they have similar -- let's say, live in a similar environment.
Q Would gender differences explain the notion that her husband was twice as high as she is?
A No, that wouldn't be that big of a difference.
Q She has actually told you that she has had the creek overflow and carrying the creosote and pentachlorophenol chemicals into her home; is that right?
A Yes.
Q She lives near that creek. So her exposure has been -- whatever the air exposure has been, plus the overflowing of the creek.
MR. HOPP: Deposition Exhibit 60.
(Defendants' Exhibit 60 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit 60 is your report and chart for Jerry W. Quarles; is that right?

A Yes.

Q Q-U-A-R-L-E-S?

A Yes.

Q And Mr. Quarles is one of the people from Grenada from whom you collected blood samples for the PAH and dioxin analysis?

A Yes.

Q And Mr. Quarles is a 40-year-old white man who lived in Grenada for 40 years; is that correct?

A Correct.

Q Mr. Quarles reported some exposures to materials in a mirror factory including tin, silver, and copper. Do you see that?

A Yes.

Q Is that metal exposure something that is significant for you for PAH or dioxin levels?

A No, there is no link that I am aware of in that trade. There is theoretically some other effects that you might get from those metals, but you wouldn't expect the dioxin or PAH levels to be high.

Q What was Mr. Quarles' weight at the time of the evaluation?

A Well, he has got sleep apnea, which might suggest he has weight issues. 288 pounds and five-foot-nine.

Q He is a stout gentleman?

A He is a very stout gentleman.

Q And that is one of the things that influence dioxin. People who tend to be overweight, tend to have higher dioxin levels?

A Well, actually, it may affect it, but his level is not very high. It is 14. He is one of the lower folks.

Q Okay. Next one is deposition Exhibit No. 61.

(Defendants' Exhibit 61 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 61 is your report and chart for Thomas Quinn; is that right?

A Yes.

Q And Mr. Quinn was one of the people from Grenada from whom you collected blood samples for the purpose of PAH and dioxin analysis; is that right?

A Right.

Q And at the time of the report, Mr. Quinn was a 70-year-old man; is that right?

A That's right.

Q And he is a smoker; correct? Apparently, a current smoker?

A Yes, still smokes.

Q A pack a day?

A Yes. It goes to show you that people can survive and be smoking.

Q Just looking at the bottom of your report for Mr. Quinn, it says that he was accompanied by his daughter, Stephanie Rounds. Do you see that?

This is the -- in the second to last paragraph on the first page.

A Yes.

Q And at the bottom paragraph, he says that she is going to take him to get a chest X-ray as soon as possible. Do you see that?

A Yes.

Q Do you know what caused her to suddenly think that the chest X-ray was an urgent thing?

A I think it was some finding on the physical exam.

Q And what was that?

A I really don't remember. Let me see if I have made a note.

Well, there was just some abnormal findings on the physical and on the lung that prompted me to suggest

that she take her father to get an X-ray.

Q And he has COPD; is that right? This is the second paragraph on Page 1.

It says he was diagnosed with COPD by one of his doctors. That is chronic obstructive pulmonary disease?

A That's correct.

Q And he has high blood pressure, which is poorly controlled?

A That's right.

Q And then it says he has dense left-sided hemiplegia as a result of a stroke?

A That's right.

Q That means he has trouble moving his left side?

A Yes.

Q What do you mean by dense hemiplegia?

A Some people with a stroke still have some use of the extremities on that side. If there is absolutely no use, you have, you know, absolute paralysis. So dense indicates that it was almost absolute paralysis.

Q Deposition Exhibit 62 is your report for James Ratliff; is that correct?

(Defendants' Exhibit 62 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q R-A-T-L-I-F-F?

A Yup.

Q Mr. Ratliff is one of the people from Grenada from whom you took blood samples for the purpose of PAH and dioxin analysis; is that right?

A Yes.

Q And at the time of the report, Mr. Ratliff was 54 years old and white; correct?

A Um-hmm.

Q Mr. Ratliff indicates that he was exposed to chlorine while disinfecting wells as a welder?

A Yes, exactly.

Q What, if any -- strike that.

We are going to talk as we go on about some of the articles that you have cited for the purposes of your report in this case which deal with chlorinated compounds.

A Yes.

Q Now, is chlorine itself, something that contains chlorinated compounds which raises health concerns?

A Well, the chlorine that they use for well drillings or chlorinating community water supplies is a form of chlorine that does not bioaccumulate. It can be

hazardous because it is a corrosive material. And it can burn the skin. And if you inhale the vapor or the dust, you can have lung problems from it.

But you don't get the cancers and the other diseases associated with dioxins, which are organic chlorine compounds.

Q All right. So the chlorine that they use for disinfecting is an inorganic chlorine?

A It can be a organic, but it is a simple organic. It breaks down to chlorine gas when it is released. That's how it kills the bacteria by forming blood sodium contained sodium like powders, I believe is usually the way -- I didn't ask him a lot of questions about how it works.

Oh, he said chlorine cylinders. That is a more dangerous way of doing it where you take actual tanks filled with chlorine gas and put that into the water, which is what is suggested by this history here.

But anyway, there are various ways of getting chlorine into the water. And it does have some hazards associated with it, but not the kind of hazard that we are talking about here.

Q Mr. Ratliff is also a cancer survivor. It says, on Page 2, that he has colon cancer; is that right?

A That's right. He had a liver resection in 2003.

Q Do you see that? It says that again on Page 2.

A Yes.

Q Do you know what --

A You know, I don't recall -- I know we have been getting records on him. I don't know whether we incorporated that into the file, but I don't recall from memory what was going on with the liver resection. So I don't recall at this moment.

Q Do you know -- can you recall whether it is related to his -- well, I'm sorry. I am looking at your summary. It appears that the colon cancer had some liver metastasis?

A That would be the most likely.

Q It was primarily colon cancer, which necessitated a liver resection, most likely?

A Yes, I am looking for my -- yes, that is what it says in the paragraph before.

Q Now, he also takes Vioxx; is that right?

A He was on Vioxx, yes.

Q And Vioxx is the drug that recently has been taken off the market?

A Yes.

Q And I know I read a lot of this in the

newspaper. What was the problem with Vioxx?

A Heart attacks.

Q Now, Mr. Ratliff was also a smoker; is that right?

A Yes. He quit when he was 47, but he was a two pack a day smoker. He was a pretty heavy smoker.

Q A heavy smoker for 30 years --32 years?

A Yup. Quite a long time.

Q I am going to hand you deposition Exhibit No. 63.

(Defendants' Exhibit 63 was marked for identification by the court reporter.)

BY MR. HOPP:

Q This is your chart and summary for Sherry Ratliff. Do you see that?

A Yes.

Q And Sherry Ratliff is one of the people from Grenada from whom you took blood samples for the purpose of PAH and dioxin analysis; is that correct?

A That's right.

Q At the time of the report, Ratliff was a 55-year-old female; correct?

A Yes.

Q Currently smokes a pack a day of cigarettes; correct?

A Yes, two packs.
Q Two packs a day. I just want to be clear. On the front page in the third major paragraph in deposition Exhibit No. 63, she currently smokes a pack of cigarettes a day. Do you see that?
A Um-hmm.
Q I'm sorry. Is that a "yes"?
A Yes. One point she was up to two, that's right.
Q And how long has she been smoking?
A Since she was 14. So that is a long time. 40 years. 41 years.
Q Deposition Exhibit 64 is your report and chart for Frederick Rester, R-E-S-T-E-R; correct?
(Defendants' Exhibit 64 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And Mr. Rester is one of the people from Grenada from whom you took blood samples for the purpose of PAH and dioxin analysis; right?
A Yes.
Q And he is a 30-year-old white male; correct?
A Yes.
Q And he currently weighs 340 pounds; is that

right?

A I have to look and see.

Q This is at the bottom --

A Oh, yes, there it is.

Q He is morbidly obese?

A He is morbidly obese. That is correct. He definitely needs some work.

Q Deposition Exhibit No. 65 is your report for -- and your report and chart for Kimberly Rester; right?

(Defendants' Exhibit 65 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And Kimberly Rester is one of the people from Grenada from whom you took blood samples for the purpose of PAH and dioxin analysis; correct?

A Yes.

Q She is a 25-year-old woman or was at the time; correct?

A Yes. Um-hmm.

Q And a nonsmoker; correct?

A Right.

Q Deposition Exhibit 66 is your report and chart for Shirley Simmons; is that right?

(Defendants' Exhibit 66 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And Shirley Simmons is -- Simmons is S-I-M-M-O-N-S. Ms. Simmons is one of the people from Grenada from whom you took blood samples for the purpose of PAH and dioxin analysis; is that correct?

A I am not finding her name here. No, I don't see it listed on this list of 29.

Q Okay. Let's hold that one, then. I think she is somewhere else. Let's move on.

A She may have been a PAH, but not a dioxin. That is possible. I have to look at the PAH list.

Q Right. There is a -- in your PAH analysis sheet that you got back from Dr. Phillips, there is a group of results identified by number?

A Right, and you have to match up the number with the name.

Q Right. And we are going to do -- it is going to be a long day, but one of the results identified is Simmons A and Simmons B.

Having told you that, does that refresh your recollection whether there was one person who -- here it is.

Let's mark this. Let's mark 68.

(Defendants' Exhibit 67 and 68 were marked for identification by the court reporter.)

BY MR. HOPP:

Q Handing you over what we have marked as deposition Exhibit No. 68.

MR. PRUDHOMME: What happened to 67?

MR. HOPP: It is marked, but we have not asked any questions about it.

MR. PRUDHOMME: Okay.

BY MR. HOPP:

Q 68 is a spreadsheet which came off your disk and appears to identify PAH results from Dr. Phillips.

Does this look familiar to you?

A Well, the data looks familiar. I am not recognizing this particular piece of paper, but --

Q And there is a series of people identified. And as you look down the list, the ones on the first page that are in all caps start with Sam Conley, Latasha Hardiman and Quarles. Those are some of the people that we just gone over, the Grenada folks?

A That's right.

Q And the ones above, starting with James Mitchell and ending with Jack Borgersen, those are the

Homosassa people; is that right?

A Yes.

Q And then there is a group of unnamed people as you go up the list between Simmons and Mitchell, those are the Jerome, Florida people; is that right?

A Yes.

Q And then at the top, there is an individual Simmons A and Simmons B. Can you remember, as you sit here, who that is?

A No, I certainly can't, and I don't think it would be Shirley Simmons. I think that is something else. I would have to go back and go through the data with my staff and figure what is going on.

Q I am going to ask you to do that provisionally as --

A Oh, I remember what it was.

Q Okay.

A It was a guy who was a young man who was about 28 who lived next to a creosote plant in another location. And out of curiosity, we got his blood, and he had nothing to do with any of these other locations.

Q Is he a plaintiff in any lawsuit that you are aware of?

A He may be. He may be in another case that involved a wood treatment plant, but I don't remember

what case it was. But I do remember that there was this young man and we drew his blood. And we added him to the list here just out of curiosity to see what we would find.

Q I know that you don't remember what the plant was, but can you narrow it down a little bit, one of the Mississippi cases or in somewhere else?

A In somewhere else.

Q Let's move on, then. 69.

MR. HOPP: Can we go off the record for a second?

(Brief recess.)

BY MR. HOPP:

Q Let me hand you 67. 67 is your report and chart for Sandra Smith; is that right?

A Yes.

Q And Sandra Smith is one of the people from Grenada whose blood you took for the purpose of dioxin and PAH analysis; is that right?

A Yes.

Q She is a 51-year-old black lady; correct?

A Yes, that's right.

Q And she was a smoker. It looks like she smoked for about a year; is that right?

A Yeah, two cigarettes a day. Pretty minimal.

Q Very light smoker?
A Yeah.
Q Would you characterize her as a nonsmoker?
A I would, yes, basically.
Q And it was 30 years ago?
A It was a long time ago. I don't think it increases her risk of anything.
Q It states, on Page 2, that she never married and has nulligravida?
A Never had a baby. Never been pregnant.
MR. PRUDHOMME: Never been pregnant.
BY MR. HOPP:
Q Deposition Exhibit 69 is --
A -- Inell Wilks.
Q I am just looking, I know you are making notes to yourself, but you are making it on the original deposition exhibit.
Let's go back. Deposition Exhibit --
(Defendants' Exhibit 69 was marked for identification by the court reporter.)
MR. PRUDHOMME: 69.
BY MR. HOPP:
Q -- 69 is Inell Wilks.
A Yes.
Q You seem to respond to her. I don't know

whether you were reading the name or something that jogged a memory?

A No, I don't recall her independently.

Q Inell Wilks is one of the people from Grenada from whom you took blood for the purpose of dioxin and PAH analysis; is that right?

A Yes.

Q And was she one of the higher values, 43?

A Yeah, she was one of the higher values, 43.

Q And she is a 60-year-old woman; correct?

A Correct.

Q It says that she -- this is on Page 2 toward the bottom of your narrative. Ms. Wilks also has kidney disease, bladder disease, gout, and blood in her urine.

Do you know what the specific kidney disease and blood disease diagnoses were?

A No, that this was just the history she gave and I don't have any independent recollection about her medical records, which I didn't review for this deposition.

Q Sure. Now, of the 29 people that we just been through from Grenada, do you believe that you have --

A Emma Woods, where is hers? She is the highest one of all. One of the highest. 93, I think was her --

Q Maybe I got Simmons?

A And then we got Arthur Blake.
Q We did Arthur Blake.
A Okay. And so the one missing is Emma Woods. I don't see that we talked about her. Did we go over Randy Barnes? I guess we did Randy.
Emma, I don't recall her.
Q Dr. Dalhgren, of the 29 people that we looked at from Grenada for the purpose of dioxin and PAH analysis, were all of these people plaintiffs or potential plaintiffs in some lawsuit?
A These 29 people, I believe, were all plaintiffs represented by London Davis and others in this case.
Q I know we haven't reproduced, for the purpose of today's deposition, all of their medical records, but do you believe that for each of these people, you reviewed their medical records prior to drafting the summary that we looked at in each of these individual -- deposition exhibits?
A No, I received the medical records, since I wrote the report on most of these folks. There may be some changes or additions based on what the records say, but this was based on just my examination of the patients back in December of '03.
Q And some of these people are older, some of them have less education; correct?

A Yes.
Q And so it is not uncommon for someone who is older and maybe less educated to give you a medical history that might be inaccurate in some respects; is that right?
A It certainly could happen.
Q And what you would do before doing a further causation analysis for one of these people is to look at their medical records to confirm or contradict the history that they have given; is that right?
A Yes. As I said, we base the opinions expressed in this report on what we had in front of us at the time.
Q Let's look at deposition Exhibit No. 70.
(Defendants' Exhibit 70 was marked for identification by the court reporter.)
BY MR. HOPP:
Q Deposition Exhibit No. 70 is your report on Emma Woods and your chart on Emma Woods; correct?
A Yes.
Q And Emma Woods is one of the people from Grenada from whom you took blood for PAH and dioxin analysis; is that right?
A Right.
Q And I think you stated earlier, I'm not sure if

we were on the record, but she was the highest value you got for TEQ; is that right?

A I think she tied. Let me check this point. I think she had 93, which tied with Frank Beck, who had a 93, and was very similar to Larry Minga with an 89. So those are the three top values.

Q And Emma Woods is 73-years-old or was at the time of the report; is that right?

A Right.

Q Is there anything in her history that you think accounts for her high dioxin measurements?

A Yes.

Q And what is that?

A Well, her husband worked at the Koppers plant for 30 years and he would bring his clothes home for washing. And she would, you know, touch his clothes, wash, probably shook the dust off of his clothes. So her exposure was through that mechanism.

Q Okay.

A And it also seemed to me burned wood -- let me see if I got that right. Oh, she went to visit the plant. That's what it was.

So she would go to the plant very frequently to visit him and have lunch with her husband. So she would visit the site and I thought there was -- I don't -- I

had a recollection that she also burned some wood from the plant in the home. So I don't see it noted here. It may have been someone else.

Q You also state she was moderately obese. This is on Page 2 above Social History.

A Yes, it shows moderate obesity.

Q But she has no history of cancer, second paragraph on Page 2; correct?

A Correct.

Q Now, you are very good identifying anybody we left out. Have we covered all of the 29 people who were the dioxin controls -- dioxin exposed population for the purpose of your report in this case?

A Yes, I think I got a dot by each one. Arthur Blake, I didn't put a dot, but I think we did do him.

Q Just for the record, Exhibit --

MR. PRUDHOMME: Exhibit No. 45.

THE WITNESS: -- 45, correct.

BY MR. HOPP:

Q We looked at all of the reports and the charts were available for the 29 dioxin -- strike that. Let me ask it again.

Have we looked at all of the reports and charts that were available for the 29 people whose blood you took for the purpose of dioxin and PAH analysis from

Grenada?

A Yes.

Q And 29 of these folks had dioxin analysis and 25 of them had PAH analysis; correct?

A Correct.

Q Now, I want to refer back to deposition Exhibit No. 13. I will give you a copy of it here. Deposition Exhibit 13 is the Axys report for dioxin analysis; is that right?

A Yes.

Q And this is the actual lab report that came back from Axys after you sent your control samples up there for analysis; right?

A Yes.

Q And, again, just so we are clear, the Grenada folks, the 29 people from Grenada, their blood went to ERGO Labs in Germany?

A Yes.

Q And that is ERGO Lab?

A Yes.

Q And the control people went to Sidney, British Columbia for analysis; right?

A Yes.

Q And each sampling that went and made up your four pooled sampling had a sample ID associated with it;

correct?

A Yes, sir.

Q And these -- if you look at the sample preparation records in the document, the term that they attached to the sample ID is "client label." Do you see that?

A Yes, I do. Client sample number.

Q Right. And there is PLT numbers or GRN numbers; right?

A Well, it depends on what page we are looking at. What page is this?

Q I am actually looking at the handwritten samples.

A Okay. All right.

Q There is a bunch of them there.

A There is an Axys sample L73- 18-38, for example.

Q But there is a client label that has a PLT prefix or GRN prefix?

A Yes, that's right.

Q And does PLT signify anything?

A You will have to ask the lab. I think -- did we -- we may have assigned those client labels.

Q Is that from the Platte Chemical case?

A Yes.

Q And Platte Chemical is a chemical plant somewhere in Mississippi?

A Yes.

Q And whereabouts?

A It's in Greenville.

Q And so the PLT samples were taken of plaintiffs in the Greenville litigation?

A Yes, I testified, I think, last time that we did a group of 20 people that lived next to the plant and 20 people who did not live near the plant, who were similar in age and social/economic status, and so on.

We were going to do a comparison from the people that lived right next to the plant versus people who live, you know, several miles away. That was the point.

And then when we got the data back, there was no difference between the two groups. And so as I stated, the levels are consistent with background level. So we are using them with background level, since it does not appear there is any basis for exposure among these folks.

Q I understand your answer, but my question was slightly different.

Is it accurate to say that PLT was the plaintiffs in the Greenville case and GRN, client labels

are the people who lived outside of town?

A Yes, I think that is correct. PLT are people who are exposed and GRN were people who were further away.

Q I want to work through these PLT and GRN documents. I am starting with PLT 26, which is the first sample preparation record?

A Um-hmm.

Q And I think we got them in order, so we can work through them one at a time. I am handing you deposition Exhibit No. 71.

(Defendants' Exhibit 71 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit No. 71 is the questionnaire for PLT 1004S00236. Do you see that?

A Yes.

Q For the sake of brevity, we will refer to this and the others by the PLT alpha designation and the last two numbers. So we will call this PLT 26.

A That's fine.

Q If you look at deposition Exhibit No. 13, PLT 26 is one of the blood samples that was sent to Axys for analysis; is that right?

A Yes.

Q How old is PLT 26?
A 16.
Q Was she a smoker or is she a smoker?
A No, nonsmoker.
Q It's a woman; right?
A Weight 110 pounds, 5'2". She is probably a girl. It says female on the form.
Q I am handing you deposition Exhibit No. 72.
(Defendants' Exhibit 72 was marked for identification by the court reporter.)
THE WITNESS: Okay.
BY MR. HOPP:
Q 72 is PLT 25; is that right?
A Yes.
Q And if you look at deposition Exhibit 13, PLT 25 is another one of the blood samples that you sent to Axys for dioxin analysis; right?
A Right.
Q How old is PLT 25?
A 42.
Q And is PLT 25 a smoker?
A No.
Q Not obese either. 5'1", 110?
A Correct.
Q Do you know if PLT 25 is a man or a woman?

A It says on the first page, the sex -- gender, female.

Q Deposition Exhibit No. 73 is your report for PLT 24; is that right?

(Defendants' Exhibit 73 was marked for identification by the court reporter.)

THE WITNESS: Correct.

BY MR. HOPP:

Q And if you look at deposition Exhibit 13, PLT 24 is one of the samples you sent to Axys Laboratories for dioxin analysis; is that right?

A Yes, it looks that way. Um-hmm.

Q How old is PLT 24?

A 40.

Q 40. And a male?

A Male.

Q Smoker or not?

A Smoked -- current smoker. Three-quarters of a pack a day starting at age 17.

Q 5'4", 165 pounds. You would characterize that as obese?

A That person is probably obese, yes.

Q Exhibit 74 is your report for PLT 4; is that correct?

(Defendants' Exhibit 74 was marked for

identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And looking at your deposition Exhibit 13, is PLT 4 one of the samples that you sent to Axys Laboratories for dioxin analysis?
A Yes.
Q How old is PLT 4?
A 40.
Q Smoker or nonsmoker?
A 41, I'm sorry. And a smoker. 41-year-old female smoker.
Q And she is white; correct?
A Yes.
Q 5'3", 170 pounds. Would you characterize her as obese?
A Yes.
Q Deposition Exhibit 75.
(Defendants' Exhibit 75 was marked for identification by the court reporter.)
BY MR. HOPP:
Q 75 is your report for PLT 21; correct?
A Yes.
Q And PLT 21 is one of the samples you sent to Axys Laboratories for dioxin analysis; is that right?

A Yes.
Q How old is PLT 21?
A 46.
Q White female?
A White female.
Q Is she a smoker?
A Smoker.
Q How many years?
A Well, let's see. She is 26 when she started. So that's 20 years of smoking.
Q Deposition Exhibit 76 is your report for PLT 22; correct?
(Defendants' Exhibit 76 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q That is, PLT 22, one of the blood samples you sent to Axys Laboratories for dioxin analysis?
A Yes.
Q How old is PLT 22?
A 25.
Q Is she a smoker?
A Yes.
Q White female; correct?
A Yes.

Q She was smoking since she was 15 years old?
A That is what it says.
Q And the most she ever smoked is half a pack a day; correct?
A That's right.
Q 5'1", 120 pounds; would you characterize that as obese?
A No.
MR. PRUDHOMME: Would this be a good time to take a break?
(Brief recess.)
(Defendants' Exhibit 77 was marked for identification by the court reporter.)
MR. HOPP: Back on the record.
Q I am showing you what we have marked as Exhibit 77. 77 is your report for PLT 27; is that correct?
A Yes.
Q PLT 27 is a 47-year-old white female; correct?
A It says, "male" here.
Q Oh, I'm sorry. I misread. 47-year-old white male?
A Yes.
Q 5'11", 180 pounds; right?
A Yes.

Q Is that obese, in your view?
A No.
Q And he is a smoker; is that right?
A Yes.
Q Smoking since he was 14 and appears to have smoked a pack a day?
A Yes.
Q Deposition Exhibit 78 is your report for GRN 22; correct?
(Defendants' Exhibit 78 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And if we look at deposition Exhibit 13, GRN 22 is one of the blood samples that you sent to Axys Lab for dioxin analysis; correct?
A Yes.
Q And the same goes for PLT 27, that was another one of the samples that you sent to Axys for analysis; correct? Last one we did.
A Yes.
Q I think I forgot to ask you that question.
A Okay.
Q So GRN 22 is a --
A 28 eight-year old white male.

Q Smoker or not?
A No, he smoked for a year or less. He started when he was 18 and quit when he was 18. And he said that he smoked about a half a pack a day at that time.
Q 5'7", 200 pounds; is that obese to you?
A Probably. Borderline, anyway.
Q Deposition Exhibit 79 is your report for GRN 22; is that correct?
(Defendants' Exhibit 79 was marked for identification by the court reporter.)
THE WITNESS: Is it a duplicate?
MR. PRUDHOMME: It is 19.
THE WITNESS: 19.
BY MR. HOPP:
Q 78 is your report for GRN 19; correct?
A Yes.
Q GRN 19 is one of the samples you sent to --
MR. PRUDHOMME: Wait.
MR. HOPP: I think I mislabeled something.
MR. PRUDHOMME: Sure.
BY MR. HOPP:
Q 79 is another copy of 22; is that correct, GRN 22?
A Yes.
Q Let me just show you 80. 80 is GRN 19;

correct?

(Defendants' Exhibit 80 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 19 is one of the blood samples that you sent to Axys labs for dioxin analysis; correct?

A Right.

Q How old is GRN 19?

A 44.

Q Male or female?

A Female.

Q Smoker or non?

A Non.

Q White or African-American?

A White.

Q 5'8", 173 pounds; correct?

A Yes.

Q Is that obese, in your view?

A Probably classified as overweight.

Q How do you make the distinction?

A Obese is 20 percent above your ideal body weight.

Q And you think 22 is -- I'm sorry, GRN 19's body weight is not quite 20 percent over?

A No, I would have to do the calculation to see.
Q But your off-the-cuff impression is it's on the border?
A Um-hmm.
Q I'm sorry. Is that a "yes"?
A Yes.
Q GRN 81 -- I'm sorry. Deposition Exhibit No. 81 is GRN 18; is that correct?
(Defendants' Exhibit 81 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 18 is one of the samples that you sent to Axys Laboratory for analysis; right?
A Yes.
Q How old is --
A 17.
Q And 5'9", 120 pounds; is that right?
A Right.
Q So not obese; correct?
A Not obese.
Q Male or female?
A Male.
Q GRN 18 is a white male; correct?
A Yes.

Q Nonsmoker; correct?
A Yes.
Q Deposition Exhibit 82 is your report for GRN 16; is that right?
(Defendants' Exhibit 82 was marked for identification by the court reporter.)
THE WITNESS: Yup.
BY MR. HOPP:
Q And GRN 16 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Right.
Q How old is GRN 16?
A 43.
Q White female; correct?
A Yes.
Q Smoker or nonsmoker?
A None.
Q 5'5", 200 pounds; correct?
A Yes.
Q Is that obese, in your view?
A Probably, yes.
Q Deposition Exhibit No. 83 is your report for GRN 15; correct?
(Defendants' Exhibit 83 was marked for identification by the court reporter.)

THE WITNESS: Yes.
BY MR. HOPP:
Q GRN 15 is one of the samples that you sent to Axys Laboratory for dioxin analysis; correct?
A Yes.
Q How old is GRN 15?
A 40.
Q Smoker or non?
A Non.
Q White male; correct?
A White male, correct.
Q And he is 5'4", 190 pounds; right?
A He would be obese.
Q That's obese? Just for the record, 5'9", 190 is obese in your view?
A Yes.
Q 84. Deposition Exhibit 84 is your report for GRN 20; is that right?
(Defendants' Exhibit 84 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 20 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Yes.

Q How old is GRN 20?
A 44.
Q White male; correct?
A Yes.
Q Nonsmoker; correct?
A Correct.
Q 6'3", 175 pounds; is that right?
A Yes.
Q That is nonobese?
A Not obese.
Q Deposition Exhibit No. 85 is your report for GRN 17; is that right?

(Defendants' Exhibit 85 was marked for identification by the court reporter.)

THE WITNESS: Well, not a report. It is a questionnaire.

BY MR. HOPP:
Q It is the questionnaire for GRN 17?
A Um-hmm.
Q And GRN 17 is one of the samples that you sent to Axys Laboratories for dioxin analysis?
A Right.
Q How old is GRN 17?
A 22.
Q Smoker or non?

A Smokes.
Q Okay. He has been smoking since he was 19; correct?
A Yes.
Q White male?
A White male.
Q 5'10", 190 pounds?
A 180 pounds.
Q I'm sorry. 180 pounds. Is that obese in your view?
A No.
Q Deposition Exhibit 86 is the questionnaire responses for PLT 23; is that correct?
(Defendants' Exhibit 86 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 23 is one of the samples that you sent to Axys labs for dioxin analysis; correct?
A Correct.
Q How old is PLT 23?
A 18.
Q Male or female?
A Male.
Q White; correct?

A White.
Q 5'6", 150 pounds; is that right?
A Right.
Q A nonsmoker; correct?
A Correct.
Q Deposition Exhibit 87 is your questionnaire responses for PLT 02; correct?
(Defendants' Exhibit 87 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 02 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Yes.
Q How old is PLT 02?
A 21.
Q Male?
A Yes.
Q White male; correct?
A White male.
Q 6'1", 210 pounds; is that right?
A Yes.
Q Is that obese in your view?
A No.
Q Smoker or non -- I can't remember if you -- if

I asked you?
A Non.
Q Nonsmoker.
Deposition Exhibit 88.
(Defendants' Exhibit 88 was marked for identification by the court reporter.)
BY MR. HOPP:
Q 88 is PLT 03; correct?
A Right.
Q And is PLT 03 one of the samples that you sent to Axys labs for dioxin analysis?
A Yes.
Q How old is PLT 03?
A 65.
Q White female?
A Correct.
Q 5'3", 148 pounds; correct?
A Correct.
Q Is that obese in your view?
A Borderline.
Q And she was a smoker; correct?
A Stopped when she was 40.
Q She smoked from age 22 to age 40?
A Right.
Q It says the most she ever smoked was -- per day

was two cigarettes?
A Correct.
Q Would you characterize her as a light smoker or a nonsmoker?
A Light smoker.
Q Deposition Exhibit 89 is the questionnaire responses for PLT 06; correct?
(Defendants' Exhibit 89 was marked for identification by the court reporter.)
THE WITNESS: Correct.
BY MR. HOPP:
Q And PLT 06 is one of the samples that you sent to Axys labs for dioxin analysis; right?
A Yes.
Q How old is PLT 06?
A 47.
Q White female; correct?
A Yes.
Q Nonsmoker?
A Correct.
Q 5'2", 132 pounds; is that right?
A Yes.
Q Is that a obese in your view?
A No.
Q Deposition Exhibit 90 is your questionnaire

responses for PLT 08; is that correct?

(Defendants' Exhibit 90 was marked for identification by the court reporter.)

THE WITNESS: It is, yes.

BY MR. HOPP:

Q And PLT 08 is one of the samples that you sent to Axys Laboratories for dioxin analysis; is that right?

A Yes.

Q How old is PLT 08?

A 36.

Q White female?

A Correct.

Q 5'8", 255 pounds; correct?

A Correct.

Q And that would be obese; is that right?

A Yes, it would be.

Q And smoker?

A Smoker.

Q A pack a day since age 16; right?

A Right.

Q Deposition Exhibit 91 is your questionnaire responses for PLT 30; correct?

(Defendants' Exhibit 91 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And PLT 30 is one of the samples you sent to Axys Laboratories for dioxin analysis; right?

A Yes.

Q How old is PLT 30?

A 26.

Q White male; correct?

A Yes.

Q 5'11", 165; correct?

A Correct.

Q Is that obese in your view?

A No.

Q Has been smoking since age 18?

A Yes.

Q And the maximum cigarettes smoked is 14 per day. Do you see that?

A Yup.

Q Deposition Exhibit 92 is your questionnaire responses for PLT 07; correct?

(Defendants' Exhibit 92 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And PLT 07 is one of the samples that you sent to Axys Laboratories for dioxin analysis; right?

A Yes.
Q How old is PLT 07?
A 20.
Q White female; correct?
A Correct.
Q 5'6 1/2", 180 pounds. Do you see that?
A Yes.
Q Is that obese in your view?
A Borderline again.
Q And a nonsmoker; correct?
A Yes.
Q Deposition Exhibit 93 is your report for PLT 29; correct?

(Defendants' Exhibit 93 was marked for identification by the court reporter.)

THE WITNESS: Um-hmm. Yes.

BY MR. HOPP:

Q And PLT 29 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Right.
Q How old is PLT 29?
A 44.
Q White female; is that right?
A Um-hmm.
Q I'm sorry. Yes?

A Yes.
Q 5'6", 170 pounds; right?
A Right.
Q And is that obese in your view?
A Borderline.
Q Started smoking when she was 20; is that right?
A Yes.
Q It looks like she smokes a pack a day; correct?
A Correct.
Q Deposition Exhibit 94 is your questionnaire responses for PLT 11; correct?
(Defendants' Exhibit 94 was marked for identification by the court reporter.)
THE WITNESS: Correct.
BY MR. HOPP:
Q And PLT 11 is one of the samples you sent to Axys Laboratories for dioxin analysis; right?
A Right.
Q How old is PLT 11?
A 36.
Q White male; correct?
A Yes.
Q 6'1", 160 pounds; correct?
A Yes.
Q That is not obese; is it?

A No.
Q And a nonsmoker; correct?
A Correct.
Q Deposition Exhibit 95 is your sample results for PLT 10; correct?
(Defendants' Exhibit 95 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 10 is one of the samples that you sent to Axys Laboratories for dioxin analysis; right?
A Correct.
Q How old is PLT 10?
A 19.
Q White male; correct?
A Correct.
Q Has been smoking for two years; correct? Since he was 17.
A Correct.
Q 10 cigarettes a day?
A That is what it says.
Q Would you characterize that as moderate smoking?
A Yes, I would say it is probably moderate.
Q 6'1", 195?

A Correct.
Q Is that obese in your view?
A No.
Q Deposition Exhibit 96 is your questionnaire responses for PLT 01; is that right?
(Defendants' Exhibit 96 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 01 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Correct.
Q How old is PLT 01?
A 39.
Q And 6'3", 245 pounds; correct?
A Yes.
Q And that is obese; is it or isn't it?
A He is probably up there. It is borderline. I don't know. It is probably borderline at this point.
Q Started smoking when she was 12 years old. Do you see that?
A It is a male.
Q Oh, sorry. White male; correct?
A Yeah.
Q And he started smoking when he was 12; right?

A That's what it says.
Q But he reports that he smokes three cigarettes per day?
A Right.
Q So is that a light smoker, in your view?
A Yes.
Q Deposition Exhibit 97 is your questionnaire responses for PLT 13; is that right?
(Defendants' Exhibit 97 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 13 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?
A Yes.
Q How old is PLT 13?
A 61.
Q Male or female?
A Female.
Q White female; correct?
A Correct.
Q 5'2 1/2", 190 pounds. Do you see that?
A Yes.
Q Is that obese?
A Yes.

Q Nonsmoker; correct?
A Right.
Q Deposition Exhibit 98 is your questionnaire responses for PLT 14; correct?
(Defendants' Exhibit 98 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 14 is one of the blood samples you sent to Axys Laboratories for dioxin analysis; right?
A Yes.
Q How old is PLT 14?
A 60.
Q White male; correct?
A Correct.
Q 5'7", 207 pounds; is that right?
A Yes.
Q Is that obese?
A Yes.
Q Nonsmoker; correct?
A Correct.
Q Deposition Exhibit 99 is your report for PLT 17; is that right?
(Defendants' Exhibit 99 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And PLT 17 is one of the samples that you sent to Axys Laboratories for dioxin analysis; right?

A Yes.

Q How old is PLT 17?

A 71.

Q White female; correct?

A Yes.

Q 5'4", 128 pounds; right?

A Yes.

Q Is that obese?

A No.

Q Started smoking when she was 17?

A Yes.

Q And the most she ever smoked is 15 cigarettes per day; is that right?

A That's it.

Q Would you consider that to be a light smoker or moderate smoker?

A Moderate.

Q Deposition Exhibit 100 is your questionnaire results for PLT 15; is that right?

(Defendants' Exhibit 100 was marked for identification by the court reporter.)

THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 15 is one of the samples you sent to Axys Laboratories for dioxin analysis; correct?
A Um-hmm. That's correct.
Q How old is PLT 15?
A 22.
Q White male; correct?
A Yes.
Q 5'9", 210 pounds; is that right?
A Yes.
Q Is that obese?
A Borderline.
Q A nonsmoker; correct?
A Nonsmoker.
Q PLT 101 -- I'm sorry. Deposition Exhibit 101 is your sample results for PLT 18; is that correct?
(Defendants' Exhibit 101 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 18 is one of the samples you sent to Axys Laboratories for dioxin analysis; right?
A That's right.
Q How old is PLT 18?

A 78.
Q White male; correct?
A Yes.
Q 5'6", 148 pounds; is that right?
A Yes.
Q That is not obese; is it?
A No, sir.
Q Started smoking 18 and quit at 55; correct?
A Yes.
Q 10 cigarettes per day; correct?
A Started smoking at age 15 and quit at 55.
Q Deposition Exhibit 102 is your questionnaire results for PLT 19; is that right?
(Defendants' Exhibit 102 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And PLT 19 is one of the blood samples that you sent to Axys Laboratories for analysis; is that right?
A That's right.
Q How hold is PLT 19?
A 54.
Q White female; correct?
A Right.
Q 5'5", 265 pounds; is that right?

A Right.
Q Is that obese, in your view?
A Yes.
Q Began smoking at 18, stopped at 48?
A Yes.
Q Maximum smoked was 15 cigarettes per day?
A That's it.
Q How would you characterize that, slight, moderate, or --
A Moderate, but for a long time. 30 years, that's for a long time.
Q Deposition Exhibit 103 is your questionnaire results for PLT 12; is that right?
(Defendants' Exhibit 103 was marked for identification by the court reporter.)
THE WITNESS: Yes. GRN 12, not PLT.
BY MR. HOPP:
Q Actually, I have the wrong document. Does yours say, "GRN"?
A Yes.
Q Your Exhibit 102?
A 103.
Q I'm sorry. 103 GRN?
A Yes. GRN, yes.
Q I think I marked the wrong document.

A This is PLT 12. This is GRN 12.
Q Yes, I got the wrong thing marked. We will just leave it. I will have to find that document and come back to it. It is marked as an exhibit and we will keep it as an exhibit. And so it will go in that pile.
Let me hand you 104. 104 is your questionnaire results for GRN 13; is that right?
(Defendants' Exhibit 104 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 13 is one of the samples that you sent to Axys labs for dioxin analysis; correct?
A Yes.
Q How old is GRN 13?
A 59.
Q White female; correct?
A Yes.
Q 5'2", 125 pounds?
A Yes.
Q Nonsmoker; correct?
A Correct.
Q 5'2", 125 pounds, is that obese in your view?
A No.
Q Deposition Exhibit 105 is your questionnaire

results for GRN 10; is that right?

(Defendants' Exhibit 105 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 10 is one of the samples that you sent to Axys Laboratories for dioxin analysis?

A Yes.

Q How hold is GRN 10?

A 41.

Q White male; correct?

A Correct.

Q Six-foot tall, 214 pounds; correct?

A Correct.

Q Is that obese?

A No.

Q Began smoking at age 15; correct?

A Yes.

Q And the most he has ever smoked is 30 cigarettes a day. So a pack and a half; right?

A Yes.

Q Is that heavy smoking?

A Yes.

Q Deposition Exhibit 106 is your questionnaire results for GRN 11; correct?

(Defendants' Exhibit 106 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 11 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?

A Yes.

Q How old is GRN 11?

A 38.

Q White female; correct?

A Yes, white female.

Q 5'3", 228 pounds?

A That's what it says.

Q Is that obese?

A Yes.

Q Nonsmoker; correct?

A Correct.

Q Deposition Exhibit 107 is your results for GRN 14; correct?

(Defendants' Exhibit 107 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 14 is one of the blood samples you sent to Axys Laboratories for dioxin analysis; correct?

A Yes.
Q How old is GRN 14?
A 20.
Q White female; correct?
A Yes.
Q 5'7", 225 pounds. Do you see that?
A Yes.
Q Is that obese?
A Yes.
Q Nonsmoker; correct?
A Yes.
Q Deposition Exhibit 108 is your questionnaire results for GRN 06; correct?
(Defendants' Exhibit 108 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 06 is one of the blood samples you sent to Axys labs for dioxin analysis; correct?
A Yes.
Q How old is GRN 06?
A 38.
Q White female; correct?
A Yes.
Q 5'5", 200 pounds; is that right?

A That's right.
Q Is that obese?
A Yes.
Q Smoked since she was 15; is that right?
A That's right.
Q Pack a day?
A Wait a minute. 15 cigarettes a day?
Q It says, "15 years old."
A Oh, 20, yes, a pack a day.
Q In all of these questionnaires, you asked, what is the most that you ever smoked. There is no real way to know what their current level of smoking is; is there?
A No, not from that questionnaire. You have to do more inquiry.
Q Deposition Exhibit 109 is your sample results -- I'm sorry. Is your questionnaire results from GRN 08; correct?
(Defendants' Exhibit 109 was marked for identification by the court reporter.)
THE WITNESS: That's right.
BY MR. HOPP:
Q And GRN 08 is one of your samples that you sent to Axys Laboratories for dioxin analysis; right?
A Yup.

Q How hold is GRN 08?
A 72.
Q White female; correct?
A Yes.
Q 5'3", 165 pounds?
A Yes.
Q Is that obese?
A Probably just at the borderline.
Q Nonsmoker; correct?
A Yes.
Q Deposition Exhibit 110 is the questionnaire results for GRN 07; correct?

(Defendants' Exhibit 110 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:
Q And GRN 07 is one of the samples that you sent to Axys labs for dioxin analysis; correct?
A Yes.
Q How old is GRN 07?
A 35.
Q White male; correct?
A That's correct.
Q 5'10", 225 pounds; right?
A Yes.

Q Nonsmoker?
A Correct.
Q Is 5'10", 225 pounds considered obese in your view?
A No.
Q Deposition Exhibit No. 111 is your questionnaire responses for GRN 05; is that right?
(Defendants' Exhibit 111 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 05 is one of the samples you sent to Axys labs for dioxin analysis; is that right?
A Yes.
Q How old is GRN 05?
A 59.
Q White male; correct?
A Yes.
Q 5'9", but we -- but we don't see the weight there?
A No weight was put on the questionnaire. Correct.
Q Is that -- is that rare? I mean, I've never seen someone to refuse to answer their weight question or omit to put their weight.

A Just an oversight. Someone forgot to fill it in.
Q Nonsmoker; correct?
A Correct.
Q Almost done.
Deposition Exhibit 112 is your questionnaire responses for GRN 09; is that right?
(Defendants' Exhibit 112 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q And GRN 09 was one of the samples that you sent to Axys Laboratories for dioxin sampling; is that right?
A Yes.
Q How old is GRN 09?
A 47.
Q And a white female; correct?
A Yes.
Q 5'6", 150; correct?
A Yes.
Q And is that obese?
A No.
Q Nonsmoker; correct?
A Yes.
Q Deposition Exhibit 112 is your sample

results -- I'm sorry. Is your questionnaire responses for GRN 03; correct?

(Defendants' Exhibit 113 was marked for identification by the court reporter.)

THE WITNESS: Yes.

MR. PRUDHOMME: This would be 113; wouldn't it? You said, "112."

MR. HOPP: It is 113.

Q Your deposition Exhibit 113 is questionnaire response GRN 03; correct?

A Yes.

Q And GRN 03 is one of the samples that you sent to Axys Laboratories for dioxin analysis; correct?

A Right.

Q How old is GRN 03?

A 40 -- this is interesting. She filled this thing out in 2004 and they were just about almost -- they were 43.

Q 43. 5'2", 160; right?

A Yup.

Q White female; correct?

A Yes.

Q Nonsmoker; is that right?

A Correct.

Q Is 5'2", 160 obese in your view?

A Borderline.
Q 114 is your questionnaire results for GRN 02; is that right?
(Defendants' Exhibit 114 was marked for identification by the court reporter.)
THE WITNESS: That's right.
BY MR. HOPP:
Q And GRN 02 is one of your samples that you sent to Axys labs for dioxin analysis?
A Yes.
Q How old is GRN 02?
A 53.
Q White female; correct?
A White female; correct.
Q 5'7", 159; right?
A Yes.
Q Is that obese?
A No.
Q Nonsmoker; correct?
A Correct.
Q 115 is your questionnaire responses for GRN 01; correct?
(Defendants' Exhibit 115 was marked for identification by the court reporter.)
THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 01 is one of the samples that you sent to Axys labs for dioxin analysis; correct?

A Yes.

Q How old is GRN 01?

A 19.

Q White male; correct?

A Right.

Q Six-foot, 162 pounds; is that right?

A Yes.

Q And that is not obese; is it?

A No.

Q Nonsmoker; correct?

A Correct.

Q 116 is your questionnaire responses for GRN 04; is that correct?

(Defendants' Exhibit 116 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And GRN 04 is one of the samples that you sent to Axys labs for dioxin analysis; correct?

A Yeah. I am just looking for the sample sheet here.

Q It's the last sample preparation record before

the pooled samples, at least in my copy of documents.

A Here it is. Okay.

Q Okay. Now, GRN 04 is one of the samples that you sent to Axys labs for dioxin analysis; correct?

A Yes.

Q How old is GRN 04?

A 24.

Q White female; correct?

A Yes.

Q 5'4", 177 pounds; is that right?

A That's right.

Q Is that obese?

A Yes.

Q Nonsmoker; correct?

A Yes.

Q Now, the deposition Exhibit 13 contains all of the sample preparations for all of the samples you sent to Axys labs for dioxin analysis; is that right? There aren't any missing dioxin samples; are there?

A Well, let's see, have we done GRN 03, 02, 01? Yes, we did.

Q I think we did.

A All right. Yes, I guess that's it. I did not count them, but I will take your word for it.

Q What would be representative of the Axys

report; that is, everything that went to Axys for the purpose of dioxin analysis; right?

A Yes, I think so. And we --

Q And as we discussed, that was the origin of the four pooled samples; right?

A Right.

Q Is there any data that -- strike that.

Under whose instructions, did Axys pool the 4 -- 40 individual samples into four composite samples?

A Me.

Q And was that based on cost?

A Yes, as I have testified. In order to see whether the group as a whole had at high values compared to -- comparison group and compared to other published norms, we wanted to be more economical. And then, ultimately, if the values were high in the exposed group especially, we would have the opportunity to go back and do individual samples.

Q Do the individual serum or whole blood samples that are described in deposition Exhibit 13 still exist in the freezer up in Axys labs?

A I don't know. I haven't checked. I think we asked them to hold onto them until we analyzed the results.

As soon as we analyzed the results and realized

that there wasn't going to be anything -- anything of importance to the particular case that was involved here, we let them throw them away.

Q Now, I apologize if we covered this, but just for context, blood samples containing dioxin have a long shelf life if they are properly handled; right?

A Yes. If you keep them frozen, you can analyze them later.

Q Dr. Schecter has, in fact, gone back recent years, have analyzed samples taken in the 1970's?

A Yes, we talked about that this morning.

Q So those were frozen and then he got samples of the frozen blood of 25 years ago or 30 years ago and looked at those; is that right?

A That's right.

Q Would there be any way to tell now what the individual results were for the -- strike that.

Would there be any way to tell now what the individual dioxin results would have been for the individual samples collected and sent to Axys labs?

A No. No, you would have to do the individual analysis to answer that question.

Q Let's talk about the control values for PAHs.

Now, you testified a couple of times that the exposed population for the PAH results was comprised of

the same group of people that you used for your dioxin analysis; is that right?

A Well, I think there is -- yeah.

Q There is a few, a couple didn't show up?

A There are some people that didn't get into both lists, but that was our plan.

Q Now, let's look at Page 53 -- 52 and 53 of your report in this case. I think -- you got it?

A Okay.

Q Now, I want to direct your attention to Page 53, the comparison samples. Do you see that?

A Yes.

Q They have seven comparison samples; is that correct?

A Yes.

Q And looking at this or from memory, can you tell me where these seven comparison samples originated?

A Well, from our Florida work. I don't know which ones this relates. It does not represent -- I think this is probably Jerome or Homosassa, one of the two.

Q That is what I want to try to tie down.

Deposition Exhibit 68, which is your PAH results, I tried to track them back against the comparisons on Page 53 of 305 of your expert report and

it appears to me that the numbers track with the Jerome plaintiffs rather than the Homosassa controls.

Can you verify or dispute that?

A No, I think that's right.

Q All right. So you used Jerome as the comparison population for Grenada; correct?

A Correct.

Q Why?

A I don't recall at this moment why I did that.

Q Do you know why you didn't use both Jerome and Homosassa?

A I think there was some question about the Homosassa results that was raised. I don't recall the details. But as you see, there are two results there and an A and a B. And there was some problem with the runs that caused them to be more wide than they ordinarily should be when you run duplicates like that.

Q Okay.

A So I think that is why we rejected them because they should have been closer -- the duplicate should have been closer.

Q Just so I understand that answer, you are looking at deposition Exhibit 68?

A Yes.

Q Let's take James Mitchell, Jr., for example,

the two runs, one of the values is .75 and the other is 4.15; is that right?

A Correct.

Q When you say "two runs," is that the same sample protocol run on the same blood coming up with two different numbers?

A Yes, I think that is what they did. They do that ordinarily. But if they are close to each other, they don't question it.

If there is a scatter, then they report both and you can decide whether or not you want to throw out the results completely.

Q Okay. I am trying to understand this.

The top of the column, again, looking at Page 68, the top of the column with the results in it, it says, "Ave of 2 Expts." Do you see that?

A No. Where are you looking?

Q Deposition Exhibit 68, which is the spreadsheet from the lab.

A Yeah.

Q And then it says, "Ave of 2 Expts," E-X-P-T-S. What does that mean?

A Two experiments, I think that is what it means. But when they are -- when there is disparity, then they report both.

I don't know what the cutoff is, but the Homosassa samples, what happened is that those people took a bus down to Miami and had the blood samples pulled there. And there was some problem with the draw and with the handling of those specimens.

All of them had some kind of a problem with them. I don't remember the details, that is why we didn't include them as the exposure measurements.

Q Well, just, again, so we are clear on Homosassa. The Homosassa results on deposition Exhibit 68, you don't have an average. You have both results reported?

A I already indicated, that is because they were -- if they are close together, they just average them. But if they are wide apart, they don't.

And there was some question about this whole batch. And, you know, it was unfortunate, but, you know, that is what the data showed. So we just decided not to use them as a comparison group because they were inconsistent.

Q Do you have the same problem with Simmons A and Simmons B?

A Yes, same problems. Also was too far apart.

Q Now, do you know what the -- strike that.

For the Jerome plaintiffs, who we see

represented without names on the front page of deposition Exhibit 68?

A Right.

Q You have single value because that means it is an average; right?

A That's right.

Q Are the individual values that make up the average reported anywhere that you are aware of?

A No. As I stated, when they are consistent, they just have the one number.

Q The lab would have that somewhere, though; right?

A I would presume they would, yes.

Q How was the Jerome -- strike that.

And, again, I apologize if we covered this.

You have 50 people in Jerome. You have seven people who were tested. I believe you testified earlier that the cost was a factor?

A No, it was availability.

Q How come you got only seven folks from Jerome?

A Well, I think the real issue was that there was only seven people that were still being exposed --

Q Okay.

A -- theoretically.

In other words, that exposure was to creosote

in the water and they were still living on the property where the contamination occurred; but they were drinking bottled water; and they were using filters on their bathing water.

We thought they might be still exposed. So we did this sampling. The rest of the plaintiffs were living elsewhere and were not exposed. And PAH adducts are only useful on an ongoing acute basis.

Q Now, in Jerome, PAHs were identified in the water quite some time ago; 1990 or so or before?

A Yes. Yes, this particular group of people were exposed probably dating back to the '50s, '60s, '80 -- late '80, early '90.

It was discovered they went on bottled water. In fact, when they checked the water in 2003, it was very little detected, which is totally consistent with what is seen here. In other words, they didn't really have any exposure.

Q So they were -- at least from 1990 forward, these people were drinking bottled water?

A Yes. I don't know the exact year, but some time quite a ways back, they were put on bottled water.

Q And someone who would have moved into the neighborhood then, after the bottled water was provided, would not have had that exposure pathway; correct?

A That's right.
Q Now, again, I am just trying to understand your prior answer. You said that you thought there might be some ongoing exposure, then, to the Jerome individuals we see identified in deposition Exhibit 68?
A Yes.
Q If it wasn't the water, what was it?
A Skin contact, maybe from the bathing. Maybe from the soil. We just wanted to check.
Q So they did at least live in the area that was served by water that at one point --
A They still did. That's right. And I think they were the only seven. That is why we ended up with only seven.
Q How was -- let me back up.
You testified a minute ago that there was in -- strike that.
You testified earlier that the Homosassa folks were bussed from Homosassa, which is north of Tampa on the Golf Coast?
A Yes, it is a long bus ride. That was the only place that we could find that could do the sample prep.
Q Down in Miami?
A Miami.
Q Where is Jerome in relation to Miami?

A It is close to Naples. Jerome is not even an incorporated city. It is just a wide spot in the road with a name.

Q Were the Jerome plaintiffs also bussed to Miami for a blood draw?

A I think so. I am trying to remember how we got those blood -- actually, I think they were drawn out in Jerome or in that area and then taken quickly by messenger or by courier; but Homosassa was so far away, that that wouldn't work. So they ended up traveling down to get it drawn.

Q Do you know how, if at all, the long bus drive would have affected the level of PAH specific in DNA adducts in the blood of the Homosassa people?

A No, I don't. I mean, I've never seen any data on that question.

Q And do you know if it was the bus drive that was a problem or rather the lab issue?

A No. The sample, the handling of the lab that caused the problem.

Q The samples are actually packed in --

A Not the laboratory in England, but the laboratory who drew the samples in Miami.

Q That the blood was drawn in Miami, packed in dry ice, and shipped to --

A No, it had to be processed to what they call the ficol method. F-I-C-O-L.

This was when they concentrate the white cells from the samples, the blood they collect; and they spin it down. And they separate the white cells and the red cells from the serum. And that is when they test the white cells.

Q So there was some mishandling of the ficol procedure that resulted in the wide variations you believe?

A Yes.

Q It is your assumption that you did not have the same disparity in the sample results in the Jerome people because Jerome was reported as a single value?

A Yes, that's Mirex.

Q Do you have handy on your computer your copy of the spreadsheet results that you got from Dr. Phillips in England?

A No, that is back on the server back at the office. Don't have that here.

Q Let's see if you can answer these questions. I am going to try to go through the Jerome plaintiffs and match them up -- try to match them up.

The Jerome spreadsheet that I got on a disk from plaintiff's counsel had two tabs to it. Let me see

if I can find the second tab.

The first tab had the Jerome sample results without names. The second one had the Jerome names.

Here we go. This can do it for us.

MR. PRUDHOMME: I have a call with a federal judge.

MR. HOPP: Let me clean up and -- is that all right, Doctor? Take a break for a few moments?

THE WITNESS: Sure.

(Brief recess.)

(Defendants' Exhibit 117 was marked for identification by the court reporter.)

MR. HOPP: Let's go back on.

Q Dr. Dalhgren, I am handing you what we have marked as deposition Exhibit No. 117 and that is my only copy. So I can't let you keep a copy of it.

That is a printout of the second tab of the spreadsheet, as we see identified as Exhibit -- deposition Exhibit 68.

Do you recognize the names on Exhibit 117 as the Jerome plaintiffs?

A No, I don't have any independent recollection of the names.

Q Is there any way using deposition Exhibit 68 -- let me show you, not to confuse things.

Let me hand you deposition Exhibit 118.

(Defendants' Exhibit 118 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit 118 is a questionnaire from one of the Jerome plaintiffs, and for confidentiality reasons, the name has been blocked out.

Is there any way, using deposition Exhibit 68 or deposition Exhibit 117, you can tell me what the name of the plaintiff is whose questionnaire results are represented in deposition Exhibit 118?

A No, I don't --

Q All right. Do you have any reason to disagree with the statement that deposition Exhibit 118 represents the questionnaire results for Darcy Kidder, K-I-D-D-E-R?

A I don't know.

Q Do you know if Darcy Kidder was a medical monitoring plaintiff?

A No, I don't know.

Q Do you know if she lived with Lee Kidder?

A Well, they have the same last name. This is bad, but I don't have any independent recollection about that.

Q Do you know if she moved into Jerome after

1990?

A No, I don't. I have no way of knowing that without more -- finding more information.

There should be a residence history here. The one that you handed me, the residence in Jerome was from '71 to '73, and then in Copeland, down a road apiece, '73 to '90.

Q And then back to Jerome. Do we know that?

A They listed in their address from Jerome from '90 forward for 14 years. So that would have probably been the sequence of events.

Q Deposition Exhibit 18 is a 32-year-old white female; is that right?

A Yes.

Q I'm sorry, 118. She is 5' tall, weight, 140?

A Yes.

Q Nonsmoker; right?

A Yes.

Q Deposition Exhibit No. 119 is another Jerome plaintiff. Do you see that?

(Defendants' Exhibit 119 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q Is there any way that you can tell me the name

of this person?

A No.

Q And how old is the person whose questionnaire results are represented in deposition Exhibit 119?

A 11.

Q And what I am showing you -- what I have showed you is deposition Exhibits 118 and 119, and then on through the next seven or eight exhibits, are the questionnaire results that your office produced that relate to the Jerome plaintiffs.

Deposition Exhibit 68 shows results for the Jerome plaintiffs and I think you testified earlier that there was only a group of seven or nine Jerome plaintiffs that showed up for testing; is that right?

A That's right.

Q So if I got a questionnaire from you that says Jerome on it, that is one of the people whose results -- I'm sorry -- whose blood was sent to England for PAH analysis; correct?

A That's correct.

Q An 11-year-old who is represented in deposition Exhibit 119, is 5'2", 125 pounds; is that right?

A Yes.

Q Is that obese, in your view?

A Well, you know, I -- 5'2" and 125, a little

chubby, maybe.

Q Is it unusual for an 11-year-old girl to be chubby?

A No.

Q Next document is 120.

(Defendants' Exhibit 120 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Deposition Exhibit 120 is another set of questionnaire results for a Jerome plaintiff. How old is the person represented in Deposition Exhibit 120?

A 26.

Q And this person gives an address as Copeland, C-O-P-E-L-A-N-D, Florida?

A That's correct.

Q Where is Copeland as a result to Jerome?

A About five miles down the road.

Q This person that we see in Exhibit 120 ever live in Jerome?

A Well, let's see. There should be some listing of address in here someplace. I think we have that as per the questionnaire, but I don't see it.

So, apparently, this particular questionnaire, which is different than the other one, doesn't have the residents history on it. So we don't know. We would

have to rely upon verbal history from this person.

Q Okay. Let's look at the questionnaire itself just for a moment. At the bottom of deposition Exhibit 120 it says, "Copyright Comprehensive Health Screening Services, Inc."

Do you see that?

A Yes.

Q And some of the questionnaires that we have been looking at, it has a copyright, James Dalhgren Medical?

A Right.

Q I assume James Dalhgren Medical is a company that you own?

A No, it is a sole proprietorship.

Q So that's you?

A That's just my practice.

Q Are you associated or have you ever been associated with a company called Comprehensive Health Screening Services, Inc.?

A Yes.

Q Can you describe your relationship with that company?

A Well, it's a corporation that we -- that I set up with a partner. 50 percent ownership for each of us. The other partner's name is Ray Warshaw. And he and I

worked on some of these screening projects together.

Q Did he work on the Jerome project?

A Yes, he did.

Q Do you still use the Comprehensive Health Screening Services health questionnaire?

A The last time we used it was about a year ago. We are not going to use it anymore.

Q Why is that?

A Because we have broken up our partnership.

Q So the work that you do that involves using a questionnaire from here on end, at least until things change, is going to be James Dalhgren Medical?

A Yes. One of the reasons -- this was an earlier questionnaire that we did. And, you know, it has no residence history, which is Ray Warshaw's responsibility. So anyway, that's part of the reason why we are not a partnership anymore.

Q Okay. Is there anything else that you find -- strike that.

Is there any other issues with deposition Exhibit 120 or Comprehensive Health Screening Services, Inc.'s survey forms which you changed -- let me ask a better question.

You are currently using the James Dalhgren Medical survey form; right?

A Right.
Q In the past, you used the Comprehensive Health Screening Services form; correct?
A Correct.
Q One of things that you testified is the things that you have now that you didn't have back then was the residence?
A Yes. We had it, but it was not attached to that particular questionnaire; but it should have been there because residence is an important issue.
Q Especially in Jerome because the issue was whether they were drinking the water?
A Or exposed to the water in any other way.
Q Is there any other problems that you found with the Comprehensive Health Screening Services' form which you corrected when you did your James Dalhgren Medical, Inc., survey?
A It is not that we corrected it, but we made sure that it was complete. We use the same questions.
For the most part, we will individualize questionnaires based upon certain things, specific things, meaning we add questions; but the basic questionnaire is the same.
Q All right.
A So, therefore, we can compare results as we go

forward.

Q And is there any way, based on the exhibits we got, particularly deposition Exhibit 68 and deposition Exhibit 117, that you can tell me who the person is whose results are represented in deposition Exhibit 120?

A No, I can't.

Q Do you remember that the 11-year-old in the Jerome case was named Laura Brown Sanders?

A No, I don't remember.

Q Looking at deposition Exhibit -- looking, again, at deposition Exhibit 120, I just want to know whether she was a smoker ever.

120 is a white female, 5'6", 140 pounds; correct?

A The smoking question should be here. We hope.

Q Here it is. I'm sorry. Page 3, nonsmoker; correct?

A Yes.

Q Deposition Exhibit 121 is your survey results for another Jerome plaintiff; correct?

(Defendants' Exhibit 121 was marked for identification by the court reporter.)

THE WITNESS: Yes. By the way, there was some residence history here on this one.

BY MR. HOPP:

Q I'm sorry. 120?

A 121, second page. She describes living in Jerome from age 20 to age 32, which is her current age.

Q Okay.

A Oh, no, his current age.

Q So 121 is a white male, 32 years old?

A Yes.

Q 6'2", 288 pounds; correct?

A That's correct.

Q Is that obese?

A Well, I guess, you would say he was obese. He is -- you know, there are people that -- well, yeah, I would say he is obese.

Q And he is a smoker; correct?

A No. It says, "No."

Q Well, he got cigars or something. He has got an X?

A There is an X next to the cigars. He accidentally answered yes and he crossed it out and answered it no.

Q Is there any way that you could tell whose -- who the subject of deposition Exhibit 121 is; the name of that person?

A No.

Q 122 is another set of questionnaire answers from Jerome; is that right?

(Defendants' Exhibit 122 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q And what is the age of the person we see represented in deposition Exhibit 122?

A It seemed to be missing some pages with the age information. So I don't know what the age of this person is.

Q Well, again, I don't think I miscopied.

A Here it is. They weren't in the proper order. Page 1 is in the middle somehow. There are two parts to different Page 1.

Q She is 28, white female; right?

A Yes.

Q 5'7", 175 pounds?

A That's it. Um-hmm.

Q Is that obese?

A Borderline.

Q Nonsmoker; correct?

A Yes.

Q Lives in Copeland, Florida; is that right?

A Well, yeah. I think Copeland, by the way, is

actually the post office for Jerome.
Q Okay.
A So you can't -- Copeland is a little area a few miles down the road, but her actual address, I think, is Jerome.
Q And she listed her residence history as having lived in Jerome from age 1 to 27?
A And that's right. And she is 28. So maybe she moved away a year ago.
Q Deposition Exhibit 123, this is another Jerome plaintiff; correct?
(Defendants' Exhibit 123 was marked for identification by the court reporter.)
THE WITNESS: Yes.
BY MR. HOPP:
Q This is a white male; right?
A Yes.
Q 33 years old, 5'11", 245 pounds; right?
A Yes.
Q Is that obese?
A Yeah, probably.
Q Now, this person gives an address of Everglades City and says that he was born in Fort Myers; is that right?
A That's right.

Q Can you tell, from this form, how long, if at all, this person lived in Jerome?

A Well, in the different type of residence questionnaires, it is near the back. Highway 29, Jerome. It doesn't say when to when.

Q Deposition Exhibit 124 is another Jerome plaintiff; right?

(Defendants' Exhibit 124 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q 45-year-old, white female; correct?

A Yes.

Q Five -- I'm sorry. 5'6 1/2", 180 pounds; correct?

A Yes.

Q Is that obese?

A Borderline.

Q Once again, gives the address of Copeland and states that she was born in Wilmington, Delaware; right?

A Yes.

Q Can you tell from this form how long, if at all, the person represented in deposition Exhibit 124 lived in Jerome, Florida? I think it is somewhere in the middle.

A 2000 to the present, lived in Jerome. So she was still living there.

Q Okay. That is after Jerome started to get bottled water; correct?

A Yes.

Q Deposition Exhibit 125, another Jerome plaintiff; correct?

(Defendants' Exhibit 125 was marked for identification by the court reporter.)

THE WITNESS: Yes.

BY MR. HOPP:

Q 49 years old, 5'7", 185 pounds?

A Yes.

Q Nonsmoker; correct? I'm sorry. Former smoker? This is Page 3.

A Yes, he smoked from 18 to 35.

Q And his high was a pack and a half a day; correct?

A That's right.

Q On this form 125, you have a box on the top of the form that says, "CHSS staff only"; correct?

A Yes.

Q And there is an initial -- there is initialed in there, I think, "Verified: CAH"?

A Uh-huh.

Q Who is that, if you know?
A I don't know offhand.
Q When Comprehensive Health Screening Services, Inc., was in operation, did it operate out of your offices here in Santa Monica?
A Yes.
Q And would CAH had been someone on your staff at that time?
A Well, it could have been one of Mr. Warshaw's people or it could have been one of mine. I just recall those initials.
Q All right. Did Mr. Warshaw sometimes bring other folks with him to work on Comprehensive Health Screening Services, Inc., projects?
A He always did. He always brought several technicians from his shop.
Q And they would work under the heading of Comprehensive Health Screening Services?
A That's right.
Q So you don't know whether CAH was someone who worked for you or someone who worked for Mr. Warshaw?
A No, I don't.
Q Let's talk about Dr. Phillips. His name is David Phillips; is that right?
A Dr. Phillips is David Phillips, correct.

Q And he works for the section of Molecular Carcinogenesis Institute of Cancer in Sutton, England; is that right?

A That's right.

Q Would you have any objection to my taking a deposition of Dr. Phillips and asking him some questions about the work that was done on your behalf?

A No.

Q Would you have any objection to me contacting Axys Labs and setting up the deposition of their people to ask about the work done on your behalf?

A No.

Q When you contacted Dr. Phillips for the purpose of the work in this case, was there a work order or set of written -- was there written communication which summarized what you wanted him to do?

A Dr. Phillips?

Q Yes, Dr. Phillips.

A Well, I'm sure I sent him a letter. We communicated by telephone and by E-mail. Probably the communication was E-mail and I told him, you know, what we were doing and what we were looking for. And we communicated.

MR. HOPP: All right. If you still have copies of those communications, I am going to make a request

now on the record and ask Keith, hopefully, to coordinate that. I would like copies of those.

MR. PRUDHOMME: Just for the record, if you want to take Dr. Phillips' deposition, please coordinate through us.

MR. HOPP: Oh, that's fine. Same goes with Axys?

MR. PRUDHOMME: Right. Tell me again now.

MR. HOPP: Written communication with Dr. Phillips describing the nature of the project and, you know, basically his assignment.

Q The reason I ask, Dr. Dalhgren, is that I don't see a lab report from Dr. Phillips that is a report similar to what you have got from Axys and what you got from ERGO Laboratories setting --

A That is because Dr. Phillips is not a commercial lab. He does not have a regular reporting system. So he -- you know, he gave the results on a spreadsheet.

And, you know, it is not like commercial labs where they have a whole reporting system in place.

Q The spreadsheet is what you produced on a disk in which you produced in this case?

A Yes.

Q So what we see represented in deposition

Exhibit 68 is --

A Is pretty much what we got, yeah.

Q Returning for a moment to the Jerome plaintiffs, when I was asking questions about selecting them and how you found them; and how you were limited with who you could take samples from, you used the term "we" in describing the work that was done to identify and bring the Jerome plaintiffs for testing. Who is "we"?

A My staff.

Q Were the lawyers involved in contacting the Jerome plaintiffs for the purpose of getting them in for analysis?

A Well, the lawyers representing them in the lawsuit, yes.

Q And who were the lawyers representing them in the lawsuit?

A Don Russo.

Q Now, in selecting the controls for the purpose of your work in this case, did you make any attempt to match the controls to your exposed population, either when it came to the dioxin results or the PAH results?

A Well, I think I already testified that these were a convenience comparison group that we had studied. They were not specifically matched, no.

We -- the Jerome group turned out to be a group of people that had levels similar to what you would expect to see in the general population and significantly different than the group in Grenada.

But we didn't make any attempt to match them ahead of time. As I said, it was a convenience situation where we had this data and was able to, you know, utilize it.

Same is true with the Greenville case, as I have already testified. That was collected for reasons that I have stated and not specifically to be a controlled group for this population; but it turned out to be, you know, a convenience comparison group because of the similarities of exposure.

Similarity of background exposure, similar of size town and state. And, you know, they are in the southern part of the United States, in a small southern town. Not exactly the same but, you know, close. So it seemed like an appropriate comparison.

Q Is it standard procedure, when doing a comparison like this, to try to match cases and controls by age, gender, ethnicity, and body weight, and other factors?

A Yes. When you are doing an epidemiological study and you have funding to do so, that would be the

ideal, but in this case, I didn't have that.

All I had was the levels we measured in Grenada and I had to compare them to other -- in the case of adduct, we did it simultaneously, at the same time, which is the key point that Dr. Phillips makes is that if you are going to do the comparisons, you need to run the samples at the same time because there is variability in one to run.

You don't want to do one group on one run and then say, six months later, do a run on another group and then compare the two.

You want to run the two together because you want the conditions to be very, very similar or close as possible, so you are doing it all at once, treating everybody the same way. Phillips didn't know who the exposed or unexposed were. He did the samples as they came.

The same with the Greenville and the dioxin. We -- you know, there was no prejudging of that. We didn't, as I said, go out and say, here is the people we have in Grenada. We are going to find someone similar for controls. We just happened to have this data and I think it has been useful.

Now, I got to say, at that time, we also looked at other data that is available and I think it is, you

know, consistent with what we saw in Greenville is consistent with what is in the literature. And, you know, with all of the caveats that we asked earlier.

Q Are there reported values for -- let me back up.

What, precisely, was Dr. Phillips seeking to measure? We kind of danced around this, but I want to get a better definition of Dr. Phillips' duties. We called it PAH DNA adducts?

A Yes.

Q What was Dr. Phillips looking for in the blood that he was testing?

A Well, it's the P32 post-label technique and basically, what they do is they incubate the white blood cells with this P32 and the P32 reacts with the adducts incorporates -- is incorporated into DNA, PAH, adduct, and is tightly bound to that adduct. And this is, you know, something that has been learned over time, you know, that happens.

So now you got the adducts, the PAH, DNA, adducts that are now attached to a radioactive phosphorus molecule. You can then count the radioactivity and the radioactivity corresponds with the amount of PAH adducts that are present in that person's white blood cells. That's, basically, what they do.

Q And then you count up the number of radio --
A Radioactivity. They put the blood -- not the blood, but the prepared sample from the dissolved and shoot up white blood cells and they put it on the electrophoretic patterns going in two different directions and solvent systems.
Separate out the DNA adducts and the solubility system in the solvent. And then they take that filter paper and can't do radioactive counting on it, and you can see hot spots where there is a higher concentrate of the adducts in absence of a spotted -- so the intensity of the radioactivity tells you that it correlates with the concentration of the adducts that are present.
Q Is the process of counting the hot spots on the filter paper a manual process or done by a machine?
A Done by a machine. A Geiger counter, as I understand it. I am not an expert in this, but you have to ask Dr. Phillips the details.
In general, they put it on the paper -- the chromatographic paper that I stated and they put it in the machine and it is counted.
Now, I don't know whether they cut the paper in pieces or whether they scan it, but they count the radioactivity.
Q Somewhere there is a published standard for P32

post-labels technique?

A Yes, this has been around for decades. Very well-established.

Q There is also a technique called Alyssa; is that right?

A Correct.

Q Do you know why Phillips used P32 post-labels as opposed to Alyssa?

A Historically, it has been more sensitive. With the Alyssa method, you frequently don't see anything because its detection limits are higher. Whereas, with the Post 32 labels technique, you almost always see some adducts even with the most minimally exposed people. So that is why I think he used it.

Q Now, looking, again, at deposition Exhibit 38, which is the printout of Dr. Phillips' results, we see numbers, just looking at -- Simmons A and Simmons B or the Jerome.

Let's just take the first Jerome number, which is the third one down on deposition Exhibit 68. It is .58. Do you see that?

A Yes.

Q .58 what?

A It is .58 adducts per 10 to the 8th nucleides.

Q Nucleides or nucleotide?

A Nucleotide. What is it? Nucleotides.
Q What is a nucleotide?
A It a component of the DNA.
Q What is an adduct?
A It is in my report. I got a page where there is a picture of an adduct, basically, or a graphical representation of what an adduct is.
It is where the PAH molecule actually forms a chemical bond with the DNA and so it is the DNA, plus the PAH together. When the two are together, this is called an adduct.
Q So what you are looking for is the number of adducts per 10 to the minus 8th?
A No, 10 to the 8th.
Q I'm sorry?
A 10 to the 8th nucleotide.
Q Now, are their literature values, published literature values for levels of DNA adducts in blood?
A Yes, there are, but as I just indicated to you, there is a great deal of variability. So you can't really compare a number published by one group with a number published by another. It always has to be relative to something.
Now, they are close. I mean, they are not widely different, but you can't take a, you know .58 in

one and a 5 in another, and they may be the same because the conditions of the testing would be the same. So you really need simultaneous controls, usually, when you are doing this study.

You have the exposed and the controls and you run it simultaneously and compare the numbers. There are sort of rough ranges that everybody would -- if it was too far high or too far low, they would question it.

Because even the most heavily exposed coal oven workers don't go sky high, and even the most unexposed general population person doesn't go too far down on the, you know, the lower side. There is a range that you generally see.

Q But correct me if I am wrong, it appears what you are saying is in contrast to the dioxin literature where there are published background levels of dioxin in blood nationwide, if not worldwide, there doesn't seem to be a body of literature which gives you a good example of what a background level would be for DNA adduct; is that right?

A I think that is a fair statement, yes. Because if you look at the literature, you will see a lot of variability.

Q And if you look at the literature, often what you see is heavily exposed population. A lot of this

work has been done in coal oven workers and people who have high levels of PAH exposures?

A Yes, but it has been done in lots of backgrounds. Done in children living in busy roadways compared to children who live far away from the roadway.

It has been done on people who live in communities next to PAH generating activity and you can see clear differences in people close by and versus control, who is a little further away. So it has been used in exactly the same setting done here.

Q Each time it is used, it is comparing one group to another group and not to establish an overall background normal level; right?

A As I have stated, it is not -- the standardizations of the technique is not such that you can do that. They keep talking about it and hoping that eventually they will get it down to the point where it is done so exactly the same that you can compare one lab and one run with the other. But at this moment, it is still not possible to do that.

Q Going back to a standard epidemiological study where you have funding and time, would it be standard to match cases and controls for age?

A Yes.

Q Would it be standard to match ages and controls

for gender -- strike that.

Would it be standard to match cases and control for gender?

A Yes, and we did that in Columbus. We did a formal epidemiologic study where we went out and found a town that was very, very similar to the town that we were studying, and we matched the populations as close as we could.

It turned out that there were some differences that we had to adjust for in the statistics. Inasmuch effort that we made to match them, there was still some discrepancies and that always happens. And what you do is you adjust -- let's say, there is a slight difference in the case of Selma and Columbus, there was a slight difference in the height of the population and we had no idea what we were going to find.

There were poor blacks living in the town and they were otherwise matched very closely, but the -- their heights were different. It was a significant difference in height.

And we also found a difference in educational level, which we did not expect; but it wasn't great. And we adjusted the statistical analysis taking those variations, but you always try to match as close as you can.

Q And just to go through the -- through the list of variables, do you also try to match when you can for ethnicity?

A Yes.

Q Do you try to match as best you can for body weight?

A Yes. Although that usually requires that you check the people, examine the people or run the questionnaire or know that ahead of time.

When you go looking for a control group, you are not going to know how much they weigh. So if there is a difference, you have to adjust for it.

In the case of Columbus and Selma, we don't have to adjust for body weight. We selected only for comparison purposes only, the blacks, so there was no question of differences in races.

Q And, typically, did you try to match for smoking?

A Usually you have to adjust for smoking. And in most cases, if you have a descent sample size, the smoking prevalence would be the same, but if not, you would adjust for it.

There is no way, ahead of time, you are going to know what smoking habits are going to be. If you match, as we did demographic, similar social, economic

group, regional group, things like smoking level and income level somewhat tend to match fairly closely.

Q Describe for me -- strike that.

Again, the purpose of context and using Selma and Columbus as an exemplar, you have two different groups of people, it could be in the hundreds or the thousands. I think in Selma you had a few hundred and in Columbus you had over a thousand; is that right?

A Well, yes, we -- I am forgetting.

Q Let me find the article.

A The questionnaire survey involved a larger number and the more detailed analysis involved a smaller number.

Q And then there is a process, I think, by which you actually then match people for the purpose of doing your comparison; is that right?

A Well, you -- you know, you are going to compare the two populations. I'm not sure what you mean by "further matching."

Q Well, that is my question. Do you match individuals or do you try to match?

A What do you mean? We are doing a cohort. It is a cross-sectional cohort study. We are not doing a case control study or a -- what do they call it? You know, where you have a match control where you take each

individual and trying to match that individual with somebody else.

We are looking at the group as a whole and the groups should be -- the characteristics of the group should be as close as possible. And that is the way we did this analysis.

MR. HOPP: Let's go off the record.

(Brief recess.)

(Defendants' Exhibit 126 was marked for identification by the court reporter.)

BY MR. HOPP:

Q Dr. Dalhgren, deposition Exhibit 126 is a copy of the published versions of your Health Effects studies of the Columbus, Mississippi group; is that right?

A That is correct.

Q And just so we are clear, I think you testified earlier that the Columbus paper is a cross-sectional study; is that right?

A Yes, it is. You know, we went in and examined a bunch of people in point A and then we compared them in a similar situated group of the same point, close in time.

Q Is it is a retrospective mortality study?

A No.

Q And --

A Although there is a lot of retrospective collecting of information about their life-long history of their illness, but it is not a mortality study. None of these people were deceased.

Q Before the break, you went into some detail -- I'm sorry. That is the only copy that I have.

You went into some detail on matches and the idea when you are doing a cross-sectional study, you will match a population against each other as opposed to when you are doing a, say, a retrospective mortality study or a case control study, you are going to want to match individuals; is that right?

A Well, if you are doing a retrospective mortality study, you may not necessarily match individuals. It depends on a study design.

You identify a 29-year-old male who has whatever characteristics you are interested in and then you want to find another 29-year-old male who has all of the same characteristics which -- except the one which would be the exposure and look at health status of the two people.

Q But that is really more an issue of case control studies?

A Case control studies are done that way. It is done with small amounts of people and with rare

diseases. It is a very clinical way to do studies because, as I say, use smaller numbers.

Q Is it your testimony, though, when you are doing a cross-sectional study, it is appropriate to match populations generally as opposed to trying to match individually?

A Yes, that is what we did here.

Q Going back to the Jerome plaintiffs and the Greenville plaintiffs, you used different groups as controls for DNA adducts and for dioxins; right?

A Well, you know, this is not controls. What we are talking about is some convenience sample comparison groups that we used because we had the data, and they were close in terms of some of the variables at interest.

I mean, I have no reason to believe that there is any big age or sex or race or any other factors in PAH adducts; and, you know, we only had this one other group where we had drawn the blood. So I wouldn't call it a control group because we didn't, as I already stated a couple of times, we didn't go out and say here is the people in Grenada, we are going to find a control group for them.

We drew the blood. We had the blood for these others. We ran them together. There were marked

differences between the two groups. That is what we indicated. It is what it is. It is not a formally matched group. It is a convenience sample comparison group.

Q I probably used the wrong words. I know why you gave your answer. It was not what I was looking for in terms of the question I was asking.

Why didn't you use the same people as your convenient comparison group for both DNA adduct and PAHs? Let me explain that a little further.

You testified, I think last time, that you believed that Greenville was an appropriate reference population for Grenada and you were taking blood at Greenville and you used it, and you did the sample runs and then compared them.

Why didn't you go back to Greenville for the purpose of doing DNA adduct?

A That's a good idea. Maybe we should do that. It would be a handy group to look at.

Q But the answer really is that you already had the Jerome data and you were doing that anyway?

A We already sent the samples to Phillips' lab when we drew the Jerome samples and the Homosassa samples. And we were looking for more -- he didn't want to run such a small number because it was a big job to

gear up his lab.

We were waiting to get another PAH exposed group, so we can use it to expand the numbers. So that Dr. Phillips would be willing to do the runs for us. That is why we did it the way we did it.

Q We talked at great length last time about the general decline in dioxin levels in blood in the United States over the last 20 years or so.

Do you remember that discussion?

A Yes.

Q And you indicated at one point that the reason you didn't use sort of general literature values for the purpose of comparing the Grenada population in this case was that the general literature values may be out of date for dioxin?

A Yes, definitely. There is a time factor in our country because there has been efforts to reduce the dioxins in the environment.

Q Have you seen any published literature values which indicates total TEQ in a population of approximately 15? In other words, is there any literature which corresponds with a total TEQ you found in --

A Greenville.

Q -- the Greenville population?

A I haven't looked at the literature with that in mind. So I can't tell you that I have seen it or not seen it. I just don't have an answer to that question.

Q The Schecter paper from 2005 was marked as an exhibit last time, and I think --

A It is at the bottom of the pile here.

Q You are a coauthor on this paper; right?

A Yes.

Q What parts of the Schecter 2005 paper did you actually physically write?

A Oh, I didn't write any of it originally, not to -- Dr. Schecter wrote it. I made a few changes, editorial comments. I don't remember exactly where. I talked to him about it. That was my contribution.

Q Keep that handy because I think we need to refer back to it.

I will show you again what we have marked previously as Exhibit 14 and this is the Axys data.

A I have a copy.

Q Okay. This is the Axys printout for the Greenville group; correct?

A Yes.

Q Now, we talked last time about the notion that for the TCDD value, you have K's represented and you told us what that means.

Is it appropriate, when you have a K value, to assume that the actual number is half the detection limit?

A No, you do that with nondetects.

Q Okay.

A I, frankly, don't know if there is any agreed upon way of handling the K values. I think what I would recommend we do is take their estimated value, realizing that it may be off; but still, if you took half of the value, I think that would be incorrect, as well.

Q And you testified earlier today that a more appropriate shorthand or sort of fudged value for them would be approximately four; is that right?

A Yeah, I mean, that's --

Q And you think it would be appropriate to raise the total TEQ on deposition Exhibit 14 to approximately 20.6? Well, if you add the 4 in?

A Yeah, it would certainly add to it and -- yes, I think that would be appropriate.

Q All right. Now, let's look at Table 5 from your expert report, which we marked last time, which is deposition Exhibit 16; and I have a copy of it right here, so we don't have to fish for it.

Do you just want to look at this?

A Okay.

Q Deposition Exhibit 16 is Table 5 from your expert report in this case. And I want to use both Exhibit 14 and Exhibit 16 for some of these questions coming up.

A Okay.

Q On Table 5, you did not include the data for 2, 3, 7, 8 TCDF; is that correct?

A 1, 2, 3, 7, 8?

Q No. 2, 3, 7, 8 TCDF.

A It's not there, so --

Q And on the Axys table, you have 2, 3, 7, 8 TCDF -- let me find it here.

A Those were all below detection limits.

Q So would it be appropriate to use half of the detection limit as a shorthand?

A Yes.

Q Would that raise the total TEQ?

A No, it would not make any difference. The TEF for that is not that high. I forget what it is. Let me look at the TEF table, but it would make very little difference. I think it is .01 or .1, so -- I wouldn't move it.

Q So half of the limit of detection times the total -- strike that.

Half the limit of detection times the TEF for

2, 3, 7, 8 TCDF would result in a very low number?

A Oh, sure. I mean, half of the detection of it would be .45 for the first one, for example. I mean, it is going to be like .01. It is just not going to make a difference.

Q So it wouldn't raise the total TEQ?

A Not by anything. Let me grab the TEF value. It is .1. The TEF. So .1 times .145 would be .04. It wouldn't make any --

Q I want to return to something that we talked about last time. I am handing you what we previously marked as deposition Exhibit 3. And this is your biomonitoring paper from 2004.

In Table 4, on -- you know what, I got the wrong -- I am barking up the wrong tree, Doctor. I will come back to this issue tomorrow.

We did talk last time about the process that your office went through to translate the values for the mean dioxin levels on Exhibit 14, which is the Axys data to get the values that we see on Table 5 of your report, which is deposition Exhibit 16.

You remember you mentioned there was a statistician in your office who has to apply some sort of statistical program in order to interpret the mean results in order to get your final --

A Yes, she adjusted the values per age.
Q How precisely does that happen? How does it work?
A You use a multiple logistical regression program on the computer and you put in the correction factor of the age and then you calculate the change that that would result in.
Q All right. The total TEQ on deposition Exhibit 16 is 31.43; correct?
A Yes.
Q And that represents the sum of the various TEFs for the dioxins and furans based on a measured concentrate on these 29 individuals; is that right?
A Yes.
Q Now, looking at Table 1 of your 2004 paper, which I just handed you, the biomonitor paper?
A Yes.
Q You represent -- strike that.
You published several different TEF values -- I'm sorry, several different TEQs?
A Okay. What are we talking about?
Q We are looking at Table 4 of the biomonitor paper.
A Okay. Um-hmm.
Q You got TEQs based on PCDD/F. Do you see that?

A Um-hmm.
Q And then there is a TEQ based on PCBs; is that right?
A Yes.
Q And there is a total TEQ?
A Yes.
Q Why, in the biomonitoring paper, do you publish three separate TEQs?
A Well, just for -- someone can do their own calculations. We just make it easier by pointing out the total, the TEQs from PCBs and TEQs from PCDD and Fs.
Q Have you calculated the TEQ based on PBDE/F for the Grenada population?
A That is what is listed here in Table 1, exposed residence, and 29, that is the Grenada people, that is their values. These were not age adjusted.
These were unadjusted values, plus the differences that you see between Table 5 in the report and in Table 1 in this presentation, not plus.
Q When you went to Greenville for the purpose of taking blood samples, did you believe that the chemical plant was a potential source of dioxin?
A I didn't, but Dr. Parant did.
Q Who is Dr. Parant?
A He is a toxicologist who was involved in the

case. And he said, gee, we really should do some dioxins.

And I said, well, I think it's not likely to show anything. Given what they do at that plant, but he wanted to do it. So we did it, as I said this morning and last time, also.

Q He -- you testified, I believe, a couple of times that some PCBs are dioxin-like; is that right?

A Yes, they have a TEF. We talked about that.

Q We talked about it generally, but what specifically does that mean? What does it mean to say -- what is a PCB?

A It is a benzopyrene with chlorine attached, similar to a dioxin and furans. They are all cousins, if you will.

Q But PCB are polychlorinated biphenyls?

A Yes.

Q They are, in fact, different chemicals from dioxins; right?

A Yeah, they are a different class. The difference is a dioxin has two oxygens between the two benzene rings and a furan has one, whereas this doesn't have any oxygen between the benzene rings.

Q So when you say a PCB is a dioxin-like, do you mean it is dioxin-like in its chemical structure or do

you mean dioxin-like in its effect?

A Dioxin-like in its effect. That is where you give its toxicity equivalent factor and it is what they will do to get that is to do an in vitro test as to how much the particular congener PCB stimulates the AH receptor.

Q Okay. So they do an in vitro test, find out how much of an enzyme is generated between the PCB congener is combined with the -- binds with the AH receptor?

A Not the enzyme. When the PCB binds to the receptor, how much of a reaction that can be measured with enzyme amounts or other ways of assessing the activity of the stimulation of the receptor but, yes, in general, that is how it is done.

Q Are all PCBs dioxin-like?

A No. Only the so-called coplanars.

Q And which are those?

A The ones that have a certain steric structure and there -- those are the ones that tend to be the flattest and that is because of the steric inhibition of where the chlorine atoms are attached. There are several places on the benzene ring where there can be chlorine attached, that is what distinguishes the different PCBs.

And there is a relatively small number that are coplanars and stimulate the age receptor. And there are a few that are not totally coplanar, but they still stimulate the receptor, although weakly.

Q There are 209 congeners of PCB; correct?

A Yes.

Q How many congeners of dioxin have been identified?

A It is about a hundred -- I think 112. I forget the number, something like that.

Q Of the 209 dioxin congeners -- strike that.

Of the 209 PCB congeners that have been identified, how many have been identified dioxin-like?

A Let me identify the table that, that I was looking at a minute ago. I didn't put in this table -- I don't remember from memory. It is probably six or seven that have TEF that has been calculated for them.

Q So a handful?

A A handful.

Q Of the 209?

A That's right.

Q Now, you have included in your report references to literature on PCBs; is that right?

A Yes.

Q Is it your opinion that the plaintiffs in this

case were exposed to PCBs?

A Not from Koppers, probably. Not unless there was some exposure that we have not identified yet.

No, I did not include the literature on that for that reason.

Q Why didn't you include it?

A Because there is an overlap. The toxicity of PCBs overlaps with the toxicity of the dioxin and the furans.

In other words, the entire class for polychlorinated biphenyls, two benzene rings, there is a lot of similarity of the diseases they cause, like chloracne immune system impairment, neurological changes, cancer.

So it is just, in my opinion, one would not be surprised to see a lot of the literature that is -- a very large literature there to enlarge our understanding of the toxicity of this class of compounds.

That is why, for example, in dioxin meetings, every year there are numerous papers on PCB. It is not a PCB conference, but PCBs are dioxin-like. So their toxicity is relevant when we are talking about this class of compounds.

Q I am having a little trouble understanding you.

There is only a handful of PCBs that have TEF;

correct?

A Yes. That's right.

Q And is it those PCBs which -- and those are the PCBs that are dioxin-like?

A Yes.

Q So when you say there is an overlap in the literature, is there not overlap in the entirety of PCB literature with dioxin, of dioxin or is it an overlap of dioxin-like congeners of PCBs?

A Almost all of the studies of the PCBs have focused upon the toxicity of the dioxin-like PCBs. That is what they are looking for.

Now, there is also now some recent, in the last few years, research where the non-dioxin-like PCBs may have some additional toxicities that are not shared, at least not shared in a powerful way with the other dioxins.

But, generally speaking, you know, 98 percent of what we are talking about with PCBs is their dioxin-like toxicity; therefore, the toxicity of a PCB exposed person is similar to the toxicity that you see from all of the other dioxins. So it is because of the end points in the PCB population that we bring them in for the discussion.

Q Now, we are going to look at some of these

studies most likely tomorrow. But isn't it true that there is not really only one or two PCB congeners that have been identified as posing a risk for breast cancer?

A I would say that they -- that that is the leading thing that the -- that some of PCBs are more estrogenic in their effect and have more an ability to stimulate the age -- not only the age receptor, but the estrogenic receptor. And so I would agree with you that there are certain PCBs that have that effect.

Q PCBs are identified -- strike that.

PCB congeners are identified by number; right, PCB 1 --

A 1 to 209.

Q As opposed to dioxin congeners, which are identified by a chemical structure; right?

A Yes, and that is because there is -- the PCBs, it depends on the relationship of the chlorines can change the chemical nature of the molecule, whereas with the dioxins, you don't have that many of the -- all you have to worry about is how many chlorines are on the two benzene rings. You don't have to worry about what orientation the chlorine has relative to the other chlorines.

Q Don't some of the PCB papers say that it is really only PCB -- I think it is 153 which is identified

as being a risk factor of breast cancer?

A You know, I have not looked at that literature. I don't recall off hand.

Q That's okay. We will get it tomorrow.

In any event, none of the plaintiffs that you are aware of in this case was specifically exposed to the dioxin congener or the dioxin congeners, which you have identified of increasing the risk of breast cancer; right?

A Yes. I am not asserting that the PCBs were the cause of her breast cancer per se. I mean, what I am saying is that there is dioxins in PAHs and benzene and probably some of the other chemicals that you have identified are the cause of her breast cancer.

Q Well, we will come back to the literature tomorrow. I want to jump briefly to the Hubbard procedure or you called it the detoxification procedure?

A Yes.

Q And this is the -- again, for context, the procedure that is being applied to the New York City firefighters; correct?

A Correct.

Q And I believe you told me that the technique had been used to enhance the elimination of similar compounds in the body; right?

A Yes.
Q And part of the procedure involved extensive sweating, sitting in the sauna; right?
A Yes.
Q Does the sweating itself; that is, does the sweat help to express out the dioxin?
A Yes. Some of the lipid soluble chemicals, such as dioxin and PCBs and that class, which are highly lipid soluble, are secreted under the skin and excreted from the body in that way.
Q Have you made any effort to -- well, strike that.
What is the chemical composition of sweat?
A Well, I mean, sweat is basically -- depends on what -- if you are talking about what is in all sweat, it is basically some water and some minerals.
Q Water and solvents?
A Water and solvents is the main constituent.
Q And dioxins and furans are not soluble in water; right?
A That's correct.
Q And given that dioxins and furans are not soluble in water, can you explain to me on the basis that they would be excreted from the body would be a sweat?

A What that is is the skin oils. What you do is increase the amount of the skin oil that is produced and we measure PCBs -- for example, I think I told you last time, in the skin oil of patients undergoing this detoxification procedure.

Q All right. Did you measure dioxins in skin oil both before and after they started the procedure?

A No, just during the procedure.

Q And is there a reference value that you were able to use to identify whether they had more than the normal amount of --

A Well, all we noticed was the amount of PCB per gram of fat was high in the skin oil.

Q In the skin oils?

A It was higher than it was even in the patients' blood fat at the time.

Q And you have published that data; that is, the data on skin oil measurements for dioxin?

A It was published by Cedrick Trusk (phonetic) in the paper that I told you about.

Q That was the paper from the '70's or '80's; right?

A Yes.

Q Cedrick brought some woman from --

A -- Yugoslavia.

Q Here to the U.S. for treatment?
A Right, for treatment.
Q But for the firemen, you published a paper on the firemen?
A We did. We did blood dioxins and PCBs and PBDEs, as well, both before and after.
Q But have you reported the skin oil measurements?
A No, we did not do the skin oils of the firefighters.
Q I'm sorry. I misunderstood.
A We did blood values.
Q I'm sorry. I think I misunderstood one of your prior answers.
You were talking about the -- your basis for assuming that dioxin can be excreted out of someone's body in sweat. And in your answer, you mentioned skin oils. I thought you said that you tested the firemen's skin oil?
A No, we just did their blood.
Q I misunderstood. You did not check the firemen at all for skin oil?
A We did not do any skin oil testing on anything.
Q For the basis that dioxin can be expressed in skin oils is the Cedrick paper?

A Yes, all we can really say is that the values came down significantly in the blood in both this lady in Yugoslavia and in these firemen that we have tested so far; but I -- based on my experience with the Yugoslavian lady, I think the skin oil is one of the routes of secretion; but there are others, as well.

Q And other one is feces?

A Feces is probably the main way, but without a full study, you know, where we spend money doing before and after in all of those different organ systems, plus even doing some measurements during the process, as well as at the end, you know, it is -- I wish I had the resources to do that.

Q One of the things you could have done and had resources to do is stool samples both before, during, and after?

A Absolutely.

Q Blood samples both before, during, and after?

A That's right. And sweat samples.

Q Skin oils?

A There are -- there are some metabolites of PCBs and dioxin where they get attached to certain molecules, like glucuronide and hydroxyl groups, which make them water soluble and come out in the urine; and that may be a root of exposure that we speed up with our process.

What we can say is that we are doing, you know, we are making some progress, but the details about how the body is doing it, we are not able to say.

Q You just know that the blood levels appear to be decreasing?

A The blood level drops and the patient experiences a significant change in how they feel. We have not published this yet, but we have big changes in some of the neurologic test we do and some of the blood tests change. So we know that we are doing something physiologically.

Q Is there any way to determine whether the changes in the way the patients feel is due at all to the placebo effect?

A Well, there may be a placebo effect. It is pretty hard to do a sham treatment with this type of thing, but I mentioned we have objective tests reaction time, balance, pegs filling a hole.

Q Neuron testing?

A Neuron testing battery that we have been using. We have been using it on the firemen before and after.

We have been trying to get the data to publish it, but somehow have not been able to get the data pulled together. We -- in the ones that we looked at, there is marked improvement of the objective test.

Q The detoxification treatment involves saunas and massages and a special diet; right?

A Well, it is niacin, high doses of vitamin B3 to mobilize fat, exercise; cardio exercise; sauna; vegetable oil; cold pressed oils. Massage is not part of it.

Q Okay.

A Although we have sometimes done that, but it isn't rigor.

Q But if I was suggested to a regimen that involved saunas and exercise and diet, I probably would feel better than I do.

Do you think that is what you are picking up, that these people are being subjected to these -- this treatment and the objective case is that they are feeling better in the regimen that is being administered as opposed to the lower dioxin levels?

A I think it is more than placebo effect. There is more a physiological change that occurs in the body.

Q You tested the firemen's blood after --

A After the detox.

Q Not before?

A We did it before and after.

Q Is the pretesting concentration reported in deposition Exhibit 6?

A No. This is the first value. So these were the prevalues, I believe.

Q Okay.

A We published them in the final paper that we actually presented in Berlin. This was just the original abstract that we submitted. We didn't have the postvalues at the time we put that together.

Q So the postvalues have since been published --

A They are available in the website. And if you would get the organohalogen -- what is it called? Organohalogen --

Q Compounds.

A -- compounds. The post-meeting publication does include the postvalues. Didn't I give it to you during the last deposition?

Q No.

A Because we wrote up the posttreatment values.

Q What you gave me at the last deposition was the 2000 Schecter paper and the recent --

A We have a paper that we -- the paper we presented, actually, included the pre and postvalues.

Q If possible, tomorrow, if you can bring that with you, I would appreciate it. I would like to look at that one.

A All right. I can actually put it on -- I think

I got it here. I can put it on the CD. Let me see if I got it here or not.

Q Can I ask you questions while you are looking or would you focus on what you are looking for?

A Let's see. I have a copy of the paper here. Let me open it up and see if it is the right one.

Yeah, here is the pre and postvalues. Yeah.

Q Actually, if you can -- I don't know if I can print it out. If you can bring a printout with you tomorrow, I would appreciate it.

A I will bring a printout tomorrow.

Q You also administered a drug or medication to these firemen; is that right?

A Niacin. It is a vitamin. High dose vitamin. We use pharmacological doses, more than you need, for vitamin purposes; but niacin has been used for years to lower cholesterol.

That is why it is generally available in large doses. It does not require a prescription. You can buy it on your own, over the counter.

Q Sure. I thought I saw a -- something else mentioned. Okay. So the only thing they were administered was the niacin?

A And the cold pressed oils.

Q For the purpose of your dioxin analysis, you

used ERGO Laboratories in Germany; correct?

A Yes.

Q Is there a laboratory in the United States that does similar work; that is, evaluates blood samples for dioxin levels?

A Oh, I think there is probably a lab or two that does it. I'm -- I am aware of Research Triangle Labs, and I used them once.

And then there is some other lab that I saw recently and somebody used for PCBs. I think it was in another little lawsuit. I don't remember the name of that lab.

So there is a couple of labs that, I think, that holds them out to do dioxins in the United States.

Q Why do you use ERGO Labs?

A Well, I relate to the experience that I had with the Research Triangle Labs, I sent them some blood samples of patients that had been exposed, I thought, to dioxin-like materials and they came back all nondetect.

Gee, everybody has got some in their blood. Why didn't they find it? I sent the same -- very same patients to ERGO and got all positive reports. I lost faith in the lab. And I said I am not going to use them again.

Q Is there a consensus standard -- is there a

consensus standard of performing tests of human blood for dioxin?

A When you say "consensus standard," if there is internal --

Q Is there a consensus standard in performing the test for dioxin?

A Not being a laboratorian who does those analysis on a regular basis, I would say I am not certain. I believe there is generally a protocol that is followed, but there may be some variations.

The important thing is whether or not the laboratory participates in an external check sample program where they get unknowns and analyze them and send them back to see whether they got them properly scored or not.

And both Axys and ERGO engage in those types of external check sample programs.

Now, I don't know about other labs, as I say. Midwest Research Lab is set up to do dioxins and PCBs and then quit after a while because they couldn't get the technique done properly. I can tell you that it is incredibly difficult to do dioxins, furans, and PCBs, specifically the coplanars that are present in small concentrations, relatively speaking.

We are talking about parts per trillion

analysis, parts of quadrillion analysis. And so in order to do the laboratory work properly, you have to have incredibly stringent laboratory controls.

Without going into detail, it costs hundreds of thousands of dollars, if not millions of dollars, to set up a lab, and then it costs an enormous amount to run it.

That is why each test is so expensive and darn few labs in the world can do it properly. Dr. Papke, at ERGO, does samples all over the world, not just Europe or the United States. He does it from Asia, South America.

If somebody wants to do a PCB or a dioxin, they have to look long and hard to find a lab that they can trust. And that is why Papke is so busy with the work because he has earned the trust of scientists all over the world.

Q Now, has the U.S. EPA endorsed any particular test method for evaluating dioxin congeners in human blood?

A You mean is there an EPA or recommended method or approved method?

Q Right.

A I believe there is, but don't know what it is.

Q Do you know if the World Health Organization or

NATO have different approved test methods?

A Different than EPA?

Q Right.

A I don't know. EPA doesn't do the test themselves. CDC has a laboratory in Atlanta where they do dioxin tests; but they wouldn't do them for private citizens.

Q Dr. Papke, on his report, which is deposition Exhibit 17, identifies various accreditations he has received. You see?

A Yes.

Q Do you know if any of those accreditations actually cover the test method for identifying dioxin congeners in human blood?

A I am not familiar with the accreditations that are listed here. I am just simply familiar with his publications and his results and the consistency of his results.

Q I know we may have covered this, but cigarette smoke contains dioxins?

A No. Dioxin has PAH in it. Cigarettes, if they contain dioxin, I have not read about it.

Q When -- if a person burns trash, would you expect it to give rise of a higher level of dioxin in their blood?

A It depends on how much they burn and how much smoke they breathe. Not many people burn garbage in their house. I suppose there are still people that burn garbage.

Q Does that create dioxins, the smoke?

A It would. Burning trash creates dioxins. That is one of the reasons why incinerators for both garbage, trash, and hazardous wastes are controversial because you do not want to create dioxins, which you could, if you don't have a high enough temperature and you are burning.

Q All right. Explain to me the concept of TEFs.

A Well, I -- as discussed earlier, you take the chemical in question and you test it to see how potent it is in terms of stimulating the AH receptor.

Q TEF is a toxicity equivalency factor?

A Factor, and that is used to determine the toxicity equivalent quotient or quantity.

Q The TEF is really a number that is in relationship to the toxicity 2, 3, 7, 8 TCDD?

A TCDD is considered the standard around all of which the -- all the others are measured.

Q TEF for 2, 3, 7, 8 TCDD is one?

A Yes.

Q And there is one other dioxin congener that has

that -- also has a TEF of one?

A I think you are right. There is one more that has one. I don't have it in my mind here, but it depends.

You know, there are different TEFs that have been published, quite different authors, so the ones I used, I think are the EPAs and they are the most conservative.

Q Okay. The World Health Organization actually does have another set of TEFs?

A They have a slightly different -- there is a lot of overlap, but there is some slight differences, yes.

Q Does NATO have another set of TEFs?

A I don't recall. The 1, 2, 3, 7, 8 pentaCDF has a -- using this particular TEF of .5, which is the next most potent one in this particular set of toxicity equivalents.

Q Other than the one other congener of dioxin that has a TEF of one, all of the other 200-some dioxin congeners have a TEF of less than one; correct?

A Yes.

Q In which you get the -- TEQ, I know we talked about this subject, but just so we cover it, what do you identify the TEQ for a given sample -- blood sample if

you were to take the TEFs?

A Multiply them by the concentration that you found.

Q Multiply them by the concentration and then just add all of resulting numbers; correct?

A Yes.

Q Your TEF -- strike that.

If when you do your evaluations, you leave congeners off your table, you are going to get a TEF that is -- I'm sorry, a TEQ that is lower by the sums that you are missing; right?

A Yes.

Q Do you agree with the following statement: There is a wide discrepancy between the draft dioxin risk characterizations of the U.S. Environmental Protection Agency and those of respected public health agencies, such as the U.S. Agency for Toxic Substances and Disease Registry, the joint United Nations Food and Agriculture Organization/World Health Organization Expert Committee on Food Additives and the European Commission Scientific Committee on Food?

A Wide discrepancies.

Q Yes, a wide discrepancy on their draft dioxin risk characterizations?

A As I said earlier, there is slight

differences -- I noticed those tables that I read to you are of the WHO TEQ?

Q So your report does use WHO?

A I thought it was EPA, but if it is WHO, there are differences, but I don't think this is wide discrepancies. I think it would be an overstatement to call them that way.

Q Do you agree with the statement that U.S. EPA used very conservative assumptions in policy positions to arrive at a dioxin risk characterization that is 100 to 1,000 times more conservative than those of the other three agencies that I just mentioned?

A 100 to 1,000 times more conservative in terms of them recommending a lower exposure?

Q Right.

A I don't have an opinion about that.

Q Do you agree with the statement that toxic equivalency factors were develop to facilitate risk assessment and regulatory control of dioxins and dioxin-like compounds, but their usefulness is severely limited?

A No, I wouldn't agree with that. I think they are very, very useful in terms of necessitating the toxicity of this complex mixture and that arguing about toxicity -- I think what these toxicity equivalents

usually do is underestimate the risk, not overestimate it. And that is just based on my own experience.

I do believe that they were derived for regulatory purposes so that they had a number that they can enforce.

But in terms of it being 1,000 times or even 100 times out of sync with reality, I don't think there is a shade of evidence to support that. In fact, quite the opposite.

I think, given the fact that people are exposed not only to dioxins, but to all of the other chemicals that have parallel effects, for example, estrogenic effects, stimulation of the age receptor, that we need to start looking at the synergistic effects.

And it may well be that the current levels of dioxins are exerting a tremendous adverse effect on the population. And then by no means can one extrapolate from some animal model where you look at one chemical at a time and say, oh, this chemical is safe because I was able to feed it to this rat; and nothing happened to this rat; or its offspring; or its brain chemistry; and, therefore, that is a safe level. That's not the real world that humans are in.

They are exposed with this chemical along with 50 other chemicals that have actually similar adverse

effects; particularly in the brain or the immune system.

So I think that, you know, right now, I don't think they are being proactive enough in looking at mixtures and their health effects.

In fact, there was a paper given in the dioxin 2004 meetings by the former head of one of the branches of Health Canada where he made this exact point where we are chasing one chemical at a time and failing to assess the very important interactions of all of these chemicals.

In fact, I brought along a paper this morning that I found that addressed this exact issue. They looked at some mixtures of PAHs and they showed that when you add dioxins to that mixture, you get a synergistic effect in terms of the toxicity end point that they were measuring, which is the K lack system. That is the way they are assessing the dioxin-like behavior.

And when you have PAHs and low level of dioxin together, you get not just an additive one and one, you get a synergistic effect. An effect of three or four, five times of what they would expect.

They made it a point expressing the toxicity using TEFs would not have predicted the effect that they saw in this mixture. So I think arguing about the

safety is too great with the level of exposure that we are talking about.

By the way, EPA risk assessment suggested that we need to lower dioxin levels even further was based on research which shows that the effects were occurring in animal test systems with the single chemical at lower levels than we had previously thought; and that is why they made this recommendation about continuing to lower environmental exposure even further than they already are.

Q Well, to have a synergistic effect between two chemicals or for two chemicals to have a synergistic effect, each of those chemicals have to cause the effect by itself; right?

A Not necessarily. I mean, that is usually the case, but there are situations where either one at the dose level that we talk about have any effect, but the two together do have an effect when they are present together.

Q In order to have a synergistic effect, each chemical has to produce the end point in question at some dose level; is that right?

A No, not necessarily because the mechanism by which you get this synergy can be due to a simulation of an enzyme that metabolizes the other chemical to the

toxicity intermediate and then it has its effect.

And it is not because chemical one, which stimulates the enzyme system, would go on and have that other effect; but it would have the net effect of having a synergistic effect. Asbestos and cigarettes are an example.

Q Is there a difference between promotion and synergy?

A Yes. Promotion has nothing to do with synergy.

Q All right. Let's talk about synergy.

If, for example, you have a substance which is not known to cause breast cancer in rats at any dose level, are you saying that it is possible that that substance can have a synergistic effect with some other substance where it --

A Yes, it can stimulate the enzymes that can produce the toxicity -- toxic intermediary. It will not cause breast cancer, but it will cause another chemical to have a greater propensity to cause breast cancer by stimulating the metabolism in that tissue. The enzymes that metabolizes PAHs to the toxicity intermediaries are stimulated by dioxins present.

Q Now, you have given us today, this morning, I think we talked about this off the record, but you have given us a set of lists of different articles; correct?

A Yes.
Q They are broken down by subject area; is that right?
A Yes.
Q And some of these articles are articles which are cited in your report; is that right?
A Yes.
Q And some of the articles contain on -- listed you gave today are not cited in your report?
A Yes, there are some new ones. Particularly on breast cancer, there are quite a few new ones and adducts, quite a few new ones.
Q Last week during Dr. Sawyer's deposition -- a week and a half ago during Dr. Sawyer's deposition, did you talk to Dr. Sawyer while he was --
A No, I didn't. One of my staff members, I think, spoke about sending us some papers about breast cancer and PAHs and dioxins.
Q Did you or your staff send to Mr. Prudhomme, during Dr. Sawyer's deposition, a list of articles on various topics related to this case?
A Yes.
Q And does that list contain all of the new papers we see represented in the stack of lists that you gave me today?

A Well, I think I added a few papers since that week and a half ago.

Q Even since that week and a half ago, there are new papers in this biography?

A Yes, I gave them to you in one of the CDPs presented this morning. So you don't have to go to the library and find them all.

Q I appreciate that. You do have, I think, a table entitled Mixture; is that right?

A Yes.

Q Are those your references on this issue of synergy?

A Well, it certainly addresses -- yes. I don't think this most recent paper that I just mentioned to you is on here yet; but this talked about the fact that when you are looking at mixtures, you see different effects than you might have expected looking at a chemical by itself.

But, yes, this is mainly -- the interaction business, the business of mixtures, that is slightly different that synergistic. Although there are several -- couple of papers that have to do with synergy. Most of them have to do with just the issue of mixtures.

Q All right. So do we have a separate

bibliography of your separate list of articles that relate to synergy?

A Well, like I said, I brought one paper this morning, which is an additional paper that I --

Q Can you give me a citation for that one? So we can get it on the record.

A Sure. Let's find it.

Q This one is entitled Evaluation of Mixture Effect in Crude Extraction of Compost Use CLAUS Bioassay and HPLC Fractionation?

A Um-hmm.

Q Yes?

A Yes.

Q And the lead author is Suzuki; correct?

A Yes.

Q Publication is Environment International 2004; right?

A Yes.

Q Can I have this copy?

A Yes.

Q Let's look at that and we will talk about that tomorrow. You have cited in your report interaction profiles that have been published by EPA?

A Yes. They address the problem -- it is not an EPA --

Q I'm sorry.

A They are devoid of very much data. They basically, all of them, just talk about the problem and the need for studies and recommendations for studies and so on; but they are really very deficient in terms of information; but they highlighted the problem that we are talking about.

Q But other than in the Suzuki paper or the papers identified on the lists that you gave us, are you aware of any other papers that specifically address the synergistic effects of PAHs and dioxins in causing human breast cancer?

A No. Well, yes, there is a paper which, I think, this is on that list, that talks about if you expose a rat to dioxin during pregnancy, then that rat's offspring is most likely to get breast cancer on exposure to PAHs. You get a higher rate.

There is some kind of change that is induced in the fetus that alters their suseptibility of breast cancer.

Q That is in rats, then?

A Yes, it's a rat study.

Q Are there any studies that you are aware of that demonstrates a synergistic effect between PAHs and dioxin for the induction of human breast cancer?

A I don't know how you do the study. Yeah, I am not aware of one.

Q 2, 3, 7, 8-TCDD is a known human carcinogen; correct?

A Yes.

Q Who considers 2, 3, 7, 8-TCDD to be a human carcinogen?

A The National Toxicology Program has rated it as a definite human carcinogen. I'm not sure about some of the other agencies.

Q IARC, International Agency for Research on cancer?

A Yes.

Q Headquartered in Lyon, France?

A Yes.

Q And they publish monographs on an occasional basis to discuss substances that are known human carcinogens or suspects them?

A Yes, they classify them.

Q Has IARC classified 2, 3, 7, 8-TCDD as a noncarcinogen?

A I don't recall.

Q Is 1, 2, 3, 7, 8-PeCDD a known human carcinogen?

A I don't think so, no.

Q Is 1, 2, 3, 4, 7, 8-HxCDD a known human carcinogen?

A No, I think all of the dioxins are, as a group, basically felt to have the potency of the TCDD per the TEF and that potency is its ability to not only cause cancer, but other health effects; but it is my understanding that that is what we are talking about is cancer-causing capacity.

Q But the fact is that none of the other congeners of dioxin; that is, none of the congeners other than 2, 3, 7, 8-TCDD has ever been identified by IARC or the NTP or anyone else as a known human carcinogen; correct?

A I don't think anybody has done any studies to specifically look at that question. So as far as I know, there is no data on that question.

Q So despite -- strike that.

Is 1, 2, 3, 6, 7, 8-HxCDD a known human carcinogen?

A Like I say, I don't think any data has been generated on that specific chemical per se, except indirectly, as I discussed earlier, in terms of assessing its TCDD-like qualities.

Q Has any national or international body ever classified 1, 2, 3, 6, 7, 8-HxCDD as a human carcinogen?

A I think I answered that question already.
Q And the answer is no?
A The answer is no one has ever actually done the study because it is not necessary. I mean, we -- there is no point in going -- making a bunch of that chemical and feeding it to the animals.
We know that it is going to have that effect based on the TCD-like behavior. So, I mean, I suppose someone can do it, but no one has. Just probably because it is not an interesting question.
Q So the classification does not exist; correct?
A I think I already answered the question.
Q Is 1, 2, 3, 7, 8, 9-HxCDD a known human carcinogen?
A It is the same answer. It has not been studied, as far as I know, as its individual chemical by itself.
Q Is 1, 2, 3, 4, 6, 7, 8-HpCDD a known human carcinogen?
A Same answer.
Q Is OCDD a known human carcinogen?
A Same answer.
Q Is 1, 2, 3, 7, 8-PeCDF a known human carcinogen?
A Same answer.

Q Is 1, 2, 3, 4, 7, 8-PeCDF a known human carcinogen?

A I think I can save you some time. The rest of that list is the same answer for all of them.

Q Same answer for every other dioxin congener?

A As far as I know, they have never been looked at by themselves. No one has ever synthesized them or used them alone to try to poison some animals and see what happened to them.

Q But those studies could be done; correct?

A A lot of studies could be done. With limited resources, you don't do every single study in the world. We have known that if they have TCD.

Q What is an AH receptor?

A Arylhydrocarbon receptor, it is a receptor that is present in every cell in the body. It controls -- when this receptor is stimulated, it controls the growth of the cell and the turnover of the cell. So it is an important receptor.

Q How does the concept of an AH receptor play into the study of dioxin?

A Well, it is felt that most of the adverse effects of the dioxin and dioxin-like materials is mediated through that receptor.

Q How is that mediated?

A When that receptor is stimulated, it has the adverse effects that we talked about. In fact, it is sometimes referred to as the dioxin receptor because it is very specific for this class of compound.

Q When the age receptor is actually a physical structure on a cell?

A All receptors are actual physical structures on a cell.

Q And the dioxin molecule binds to the age receptor; is that right?

A Yes. And, thus, stimulating it to do what it does and exactly what it does is fairly complicated, goes into the -- causes the release of another compound that then travels to the -- where is it, to one of the other structures in the cell and has its effect there.

Q It has the effect down the line of inducing enzymes; correct?

A Inducing enzymes and also inducing regulatory features of the cell, which is why it is so dangerous because it affects that cells signaling of that growth and regulation apoptosis and other critical stages of cellular function.

Q On what cell structure would we find the age receptor not on the cell memory? How many naturally occurring substances and other synthetic chemicals are

capable of binding with and activating and deactivating an AH receptor?

A The PAHs stimulates the age receptors, they are weak compared to the dioxins, but they do have that capacity. The paper I just gave you talks about that to some degree because the K lack system is one of the ways you can see how stimulated the age receptor is.

Q PAHs and what else?

A Oh, there are a few other things that have been identified.

Q Can you name them as you sit here?

A I am trying to remember. I can't remember right this minute.

Q If an AH receptor antagonist is bound to the AH receptor, does that mean that dioxin cannot then bind to that receptor?

A Yeah. If you had antagonistics to block the receptor that -- so that it couldn't be stimulated, then you would block the effect of the dioxin.

Q Does dioxin need to bind to an AH receptor in order to have a toxic effect?

A Well, that is generally what people believe. Although there are a couple of other mechanisms that have been talked about that they don't seem to be as nearly as important, but other effects that it can have.

Q Do you know what those other mechanisms are?
A I don't recall right off hand.
Q Dioxin is not, by itself, chemotoxic; correct?
A Yes.
Q Is it something that -- PAHs are, by themselves, chemotoxicity?
A Yes, they are very much so. That is their main thing about the PAHs is their ability to bind to DNA and, therefore, cause destruction of signaling and reproduction, faithful reproduction of the DNA.
Q Has the mechanisms for action of -- action for dioxin been studied in mice?
A Yes.
Q Have they been studied in other species?
A Yes.
Q Which other species?
A Guinea pigs, rats, dogs, monkeys. Probably dozens of other studies, I'm sure, have been done in all kinds of species.
Q Have they been studied in humans?
A Yes.
Q Have there been any papers published that TCDD gives rise to enzyme induction in humans?
A Yes.
Q Can you cite one?

A Not off the top of my head. I have to go and do some research that stimulates a variety of enzyme systems of the body in humans.

Q What else binds the AH receptors?

A You asked me that already.

Q You're right. Strike that question.

What is the evolutionary function of the AH receptor?

A I don't remember. I think there was one, but I am not sure what it was.

Q Do you know if anybody really knows the answer to that question?

A I don't know.

Q What are the naturally occurring ligands -- that is L-I-G-A-N-D-S -- for the AH receptor, these are naturally occurring substances?

A I don't recall. I don't remember.

Q Do you know what a knockout mouse is?

A A knockout mouse is a mouse with certain genetic factors that cause them -- for example, you can have knockout mouses with different things knocked out; but one of them that you are probably referring to is a knockout mouse that does not have an AH receptor.

Q You can breed a mouse that does not have an AH?

A And they are not subject to the anti-toxicity.

Q How do those mice do generally?
A I don't know.
Q Do you know how healthy they are?
A No, I don't.
Q Has enzyme induction been studied in the Seveso, S-E-V-E-S-O, cohort?
A Enzyme induction, looking at liver enzyme activity, for example?
Q Yes.
A I do believe that was done. It wasn't done on them. It has been done on others.
Q Has it been studied -- has enzyme induction been studied in NIOSH worker cohorts?
A I think that there was something -- I think that was done on that group, but I am not certain. I would have to check the paper.
Q Are there molecular differences between human and mouse AH receptors?
A I don't know.
Q Do different strains of mice react differently to identical doses of TCDD?
A Different strains react differently, yes.
Q Is it true, compared on -- compared to the data, is it true that compared to the data on mouse AH receptors, that human AH receptors appears, under free

cell conditions, at least to have a several fold lower affinity for TCDD?

A The mouse receptor?

Q Compared to the mouse, the human has several folds lower affinity for TCDD?

A I don't know below that.

Q And is it true that some data suggest that the human AH receptors may be many times less sensitive than the mouse AH receptor in eliciting a response?

A Many times?

Q Many times.

A I don't know the answer to that. I know there are differences, but I don't know the quantitative differences.

Q Are many AH receptor modulated against regulated in a species cell and developmental stage -- strike that.

Are many AH receptors modulated against regulated in a species cell and developmentally stage-specific manner?

A I think you got a compound question there.

Q I do?

A There are lots of issues. Probably the answer is yes, but I don't know what it means exactly. Why don't you break it into pieces.

Q Why don't I suggest, does the answer to that question discuss that a molecular and cellular pathways leading to a particular toxic event are extremely complex?

A That, I think, is a fair statement. The complexity of the toxicity of these compounds is great.

Q All right.

A And like I mentioned to you earlier, that the exposure in uterine altered the susceptibility of the offspring in life to develop breast cancer.

I mean, that doesn't happen if you expose the animal to TCDD when the animal is mature. So there are differences in timing, just as an example, as we passed by the question complexity, it is very complex.

Q Is it true that biochemical and biological outcomes of TCDD exposure can be modulated by numerous other proteins with which the AH receptor reacts?

A Yes, there are a lot of interactions that go on.

Q Is it true that even for TCDD, many unanswered questions still exist regarding how it causes cancer in mice?

A Yes, it is still not certain -- the mechanisms are debated as to how a nongenotoxic chemical can cause cancer. But as I said earlier, I think most thinking is

that it has to do with this regulation of growth, and apoptosis. There is two functions that are shown to be interrupted and affected by dioxin.

And just to amplify on the second point, apoptosis is the normal function of the cell. When there is an abnormality of any kind, the cell says, okay, we have an abnormal DNA, abnormal functioning part of the cell; we are going to kill this cell and in an orderly fashion.

And so that, basically, it turns on a mechanism for cell death. And it is an orderly process. And all of the components of the cell are then reused by the body, you know, as opposed to necrosis, which is an adverse cell death caused by, for example, when you have a heart attack, the cells die.

It is not a -- apoptosis, it is not an orderly progression of death and it has adverse consequences as a result of that. You know, the cell doesn't renew itself. You don't get a new cell to replace it necessarily.

So apoptosis is an important mechanism to get rid of abnormal cells, but maintain the optimal function of the organism. When apoptosis is interfered with dioxin, allowing cells that should die or be killed off in an orderly fashion by the body, thus, you got an

abnormal cell that is allowed to live and keep going and produce.

That may be one of the mechanisms, but there is no agreement as to what the mechanism is where at the mutagenic agents like PAHs. Everyone thinks they understand that the mechanism is fairly straightforward.

You damage the DNA in sufficient amounts and quantities and places. Cancer is one of the consequences that does occur from that genetic damage.

Q The point that you are trying to make is there is still a lot of unanswered questions about how TCDD caused cancer in mice?

A There is still unanswered questions about everything in medicine, but TCD dioxins have a lot of questions.

Q There is lot of unanswered questions about how the mechanism works whereby TCD causes cancer in mice?

A Yes. And, you know, how many billions of dollars have been spent trying to figure out cancer in any setting anywhere, anymore, anyhow. We know preciously little in spite of the billions we've spent on research. It is a complex business.

Q Is it true that the --

MR. PRUDHOMME: Is this a good --

MR. HOPP: I have a couple more questions.

Q Is it true that the mechanism by which TCD may cause cancer in humans is even less well-understood than what we understand about mice?

A About mice?

Q We just established that the mechanism by which TCD causes cancer in mice is not well-understood?

A Yes.

Q Is the mechanism by which TCDD may cause cancer in humans even less well-understood?

A We usually learn about mechanisms by doing animal studies. If we learn to -- learn from -- animal studies allows us to intelligibly design treatment and preventions in humans.

And insofar as we don't have a mechanism, it is very difficult for us to develop treatments. I am not -- you know, I didn't prepare myself for the issue of the mechanisms by which dioxin causes cancer; except in my normal, natural reading, I picked up a few pointers about it; but I don't think we know the mechanisms of most cancer-causing agents and most cancers are of unknown cause.

So there is a lot we have to learn. That does not mean we cannot identify certain high risk situations of more cancer is occurring as a result of certain exposures. We can certainly do that.

There seems to be very little controversy of cigarette smoke associated with cancer. We don't necessarily know all of the details.

Why cigarette smoke causes cancer in one person and not the next. They both smoke the same amount, live in the same town, same genetic background in terms of genetic background. One gets it; one does not. What is going on?

Q In humans, we have the basis of observational studies to try to isolate exposures and try to see the increase incident?

A Yes.

Q Do you accept the notion that the dose response curve of toxic effect of dioxin exposure in humans is not linear?

A I don't know of any data on the question of a nonlinear dose response for cancer induction. In other words, as I understand it, the consensus of the scientific community is that it is linear. And if those people who argue that it is not, they still haven't produced any evidence to support that notion, as far as I am concerned.

Q Do you know what the U.S. EPA's position is on whether there is a linear or nonlinear dose response curve for dioxin in human health effects?

A It is my understanding that they believe it is linear.

Q Do you know what the reason -- do you know the reason the U.S. EPA gives for its approach?

A Well, that is general policy. And as I say, most scientists who are in the field feel that there is no threshold for cancer induction, basically, for the reasons that we have talked about.

Namely, that if the chemical is capable of having an adverse effect, it is very difficult to imagine how it would have a threshold.

Q So for the EPA, at least, the use of a nonlinear dose -- the use of a linear dose response curve reflects policy decision as opposed to a decision based on the weight of the evidence; correct?

A No, I think that it is based on the weight of the evidence. At this point, there is no scientific evidence that there is a threshold for cancer induction.

There are people that argue it theoretically, but they have presented no data to support it.

MR. HOPP: Now is a convenient time, if you want to stop.

MR. PRUDHOMME: Okay.

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I, JAMES DAHLGREN, M.D., do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this _____ day of _____,

20__, at _____, _____.

(City) (State)

_____

JAMES DAHLGREN, M.D.

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: _____

_____

Diana Janniere

CSR No. 10034